MAR 15 1928

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IRON TRADE REVIEW

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Timken Endurance and Economy for Mill Motors

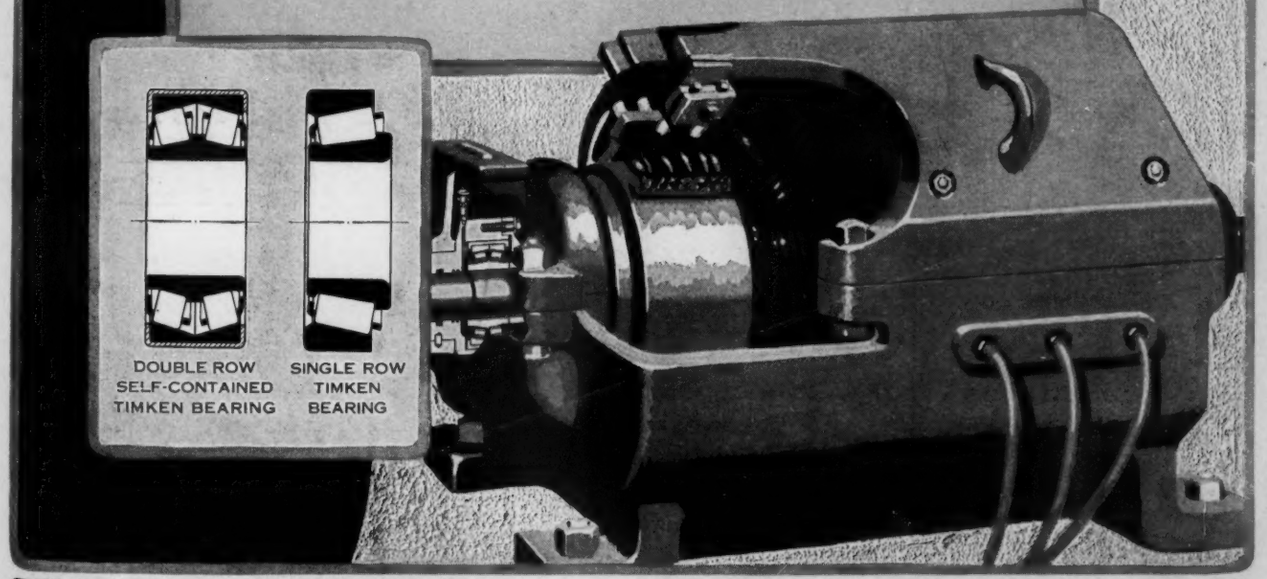
The continuous, attentionless power-saving service rendered by Timken Bearings in mill motors, is due to the same durability which has put these anti-friction bearings on the roll-necks of the biggest mills.

The basis of Timken superiority in mill motors is Timken self-contained full *thrust-radial* capacity. The wear of friction is as effectively overcome under thrust loads as it is radially. The thrust of worm, bevel, spur or herringbone gear drives, and of belt lash, is carried without compromise. Motion is confined entirely to the Timken Bearings, relieving armature shafts of all wear.

Full thrust-radial capacity in the same bearing means simplicity, accessibility, and greater load area for any given dimensions. Compactness means a shorter shaft, greater rigidity, less obstruction to ventilation, and reduced overall size, even in fully enclosed motors.

No lubricant is lost on the windings, or outside the motor. Lubrication attention a few times a year preserves the gap permanently. Timken Bearings make it advisable to consider replacing obsolescent motors at once. Take it up with Timken or any motor builder.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO



TIMKEN *Tapered Roller* **BEARINGS**

The New

Koppers Building

A THIRTY-TWO STORY building is being built for the Koppers Company in Pittsburgh. This structure will be the tallest office building in Pittsburgh and will be a splendid expression of modern design and efficiency.

The site of the building at Seventh avenue and Grant street is easily accessible to the Union Station, principal car and bus lines, the boulevards and the proposed new post office.

Architects are Graham, Anderson, Probst and White with E. P. Mellon as consulting architect.

Completion is promised for January, 1929. The Koppers Company will occupy the fourth to fifteenth floors and the balance of the building will be available for desirable tenants.

THE KOPPERS COMPANY

PITTSBURGH, PENNSYLVANIA

Chicago · New York

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Number 11

IRON TRADE REVIEW

Cleveland, O.
March 15, 1928

The Authority of Industry — National and International

BASE YOUR COSTS ON FAIR VOLUME, TO AVOID PROFITLESS PRICES

Cutting the Market in Expectation of Getting More Than Your Share of the Business Has Powerful Reaction—How One Manufacturer Solved the Problem

By Charles N. Fitts

WHENEVER a group of manufacturers meet in friendly discussion sooner or later the conversation reverts to unsatisfactory prices prevailing in industry. In this respect the situation is not unlike Mark Twain's celebrated remark about the weather: "Everybody is talking about it, but nobody ever does anything about it." However, it is possible that something can be done about the condition of industry. Before beneficial steps can be taken we must first ascertain the underlying causes of the unsatisfactory conditions. For the purpose of illustration let us consider the structural steel fabricating industry. During 1926 the members of the American Institute of Steel Construction shipped 1,000,000 tons of fabricated material. This was supposed to have been a good volume of business, as good as could be hoped for outside of a boom year. However, the complaint about the low level of prices was general. In 1927 the volume of business taken was as great, if not greater, than in 1926, but still there was no marked improvement in prices obtained by sellers. Evidently better prices are not to be obtained simply because there is more business to be had. This seems contrary to the workings of the law of supply and demand, and one wonders what's behind it all. Apparently the ability of the fabricators to produce is so much greater than the ability of the country to consume that except in times of devastating appetites, such as are caused by a world war, there always is a surplus of productive capacity. Granted that a surplus of capacity exists, what does it mean and what can we do about it? When we speak of the "capacity" of an industry we mean its potential production. In considering what the capacity of his plant is a manufacturer must base his estimate on the assumption that business will come to him in a uniformly steady flow, and will comprise the class of work which he can do to the best advantage.

In their efforts to attain maximum plant operations, are not manufacturers doing the thing which brings about the situation all deplore?

What are we going to do about it? The an-

What Is Your Capacity?

THIS article explains one way to avoid destructive competition. That "profitless prosperity" is due largely to overcapacity, and straining for business to keep capacity engaged, is obvious; but how is the average manufacturer to estimate in advance his fair share of the volume of going business, that he may arrive at a fair price basis? A solution is suggested in this article, by the treasurer of the New England Structural Co., Boston.

swer is to go after the thing which is causing the trouble. May we not have located the source in our conception of the term "capacity"?

In an address before the Illinois Manufacturers' Costs association in Chicago, W. L. Churchill said:

"One of the most serious causes for depressed manufacturing profits is the almost universal habit of calculating prices on the basis of what they might be if certain maximum volume is attained. Industries that are catering to a saturated market and have excess producing capacity fail to realize the ultimate fallacy in securing immediate and substantial increase in volume by taking business from competitors. They name or accept bids ruinously below normal production conditions, but that can be made profitable if sufficient volume is obtained. The competitor or competitors who may have lost this business must name still lower prices to replace depleted volume and in hope of obtaining sufficient additional business to offset the temporary loss."

"It is difficult for the average manufacturer to resist the temptation to fill his plant full of work when he has the opportunity, or even to go out blindly after volume when he finds his plant not operating to capacity.

"The simple, easy way to obtain the volume is by low prices. Unfortunately, no one has a monopoly on the idea that low prices will fill a plant with orders, and so all hands name low prices to fill all plants; and since there is not enough business for all plants to operate to capacity all suffer from the common ailment of reduced earnings. Even those who do not succumb to the general epidemic of order-getting-at-any-price find themselves obliged to meet unfavorably low prices to retain even a reasonable share of business.

Caution Is Sounded

"Manufacturers must be brought to realize that most of our industries have capacity for much larger output than is being absorbed, and that for any one individual to attempt to obtain more than his share by naming prices unfair to his stockholders, if he fails to maintain this larger share of business, is defeating the object of his effort. He will have less to give his stockholders than by selling a fair share at fair prices."

This is sound reasoning. If all of us continue to base our expectations of profits on obtaining a volume of business which our experience tells us we can never hope to attain, we are chasing a will-o'-the-wisp which will lead us straight to disaster.

The obvious thing to do is to determine how much business we have a right to expect based on past experience. When we have determined this let us proceed to base our anticipations on the solid foundation of fact.

What is the fundamental fact upon which we can base our expectations? Let us take an example from the structural steel industry. Suppose a fabricator finds his average production over the previous five years was 20,000 tons annually. Regardless of what he thinks he can do, his experience should tell him that 20,000 tons is all he is likely to do. Any method of apportioning overhead based on a larger tonnage output is almost sure to be erroneous and to lead to wrong assumptions as to cost.

How Costs Were Computed

Let us suppose that he recognizes the limitations of the business and is determined that he will be guided by actualities. How is he to fix his costs on that basis? This is the way adopted by one fabricator with satisfactory results:

First, the number of men required fully to man each machine in his plant was computed. This included not only the men at the machines but all the secondary help, such as sweepers, helpers, yard men and the like. Then he asked himself: "How many hours each year can I reasonably expect this particular machine to work?" This developed the fact that some of the machines could reasonably be expected to operate all the time, but others would vary in their probable use. This was particularly the case with respect to special machines for unusual work.

He next computed the total number of hours if all the men worked for a year. It must be remembered that some of the machines were figured to run 100 per cent and others as low as 20 per cent. In his case he found that the total number of hours so worked was approximately 300,000.

From his records he further ascertained that the average output per hour per man was one-tenth of one ton. If he could operate for 300,000 hours this would equal an output of 30,000 tons annually. But he found himself faced with the incontrovertible fact that his maximum output in any of the past five years was 22,000 tons, and it had fallen as low as 18,000 tons with an average of 20,000 tons.

With these figures before him he was forced to realize that while he had the facilities to produce 30,000 tons he could not reasonably expect to get more than two-thirds of this amount. He proceeded to base his production costs on 70 per cent of his theoretical capacity, feeling that he would take a chance of acquiring the additional percentage by increased effort, augmented by a dash of optimism.

Knowing the average rate of wages in his plant, 55 cents per hour, he calculated his annual pay roll at 210,000 times 55 cents or $115,500. As his total overhead expenses were $120,000 per year he obtained an overhead ratio of 104 per cent against the 75 per cent which he had been using based on higher expectations of production.

The result was that he found his costs under this method were practically the same as his previous cost, plus profit; but whereas his contracts before had each shown some profit, the profit had been dissipated due to the fact he had an unearned burden as great as the total profit. But, under the new plan so long as he could contract at more than cost for the work he took, the profit earned remained with him.

The temptation to sell below cost to keep his plant going at a fictitious rate was removed as he was reasonably assured of an average amount of business at actual cost figures, at least. Anything he could get above these cost figures was profit.

The fabricator has had this method in use two years. He recognized that he must be content with only part of the business offered; that it is economically unsound to plan to operate his plant at full potential capacity. To do this must be at the expense of other fabricators. He learned that any attempt to increase his sales beyond a fair share would tend to nullify all he had accomplished.

Burden Is Reduced

He has reduced his unearned burden to a minimum, due to the reduced number of hours his budget is based upon. The pressure urging him to take work at wrong prices, to operate his plant at a fictitious rate, has been reduced.

What would be the effect on general prices if all fabricators followed this example? Prices would be higher and the urge to obtain a tonnage goal, which can never be attained, would be eliminated. If every fabricator and manufacturer would be satisfied to operate his plant at that percentage of potential output which experience showed was to be expected, and would base his costs on that, we would make real progress towards solving the problem of unsatisfactory earnings, without in any way reducing the output of the industry.

Tenth Article—Chemistry of Pickling

CHEMICAL reactions that take place in pickling begin with the smallest known particle, namely, the electron. Electrons, atoms, molecules, all deal with the ultimate particles of matter. The atom is the unit of chemical combination. Electrons are common constituents of all gases. The electric charge on an ion formed in the process of electrolysis is the same as the electric charge of an electron. The mass of the hydrogen ion is 1700 times the mass of an electron, or negatively charged corpuscle.

The atom has been defined as the smallest particle of an element which can enter into or be expelled from chemical combination. A molecule is the smallest particle of an element or compound which can exist in the free state. Certain groups of atoms held together by atomic forces constitute molecules. Hydrogen, for example, consists of discrete particles called molecules, each one made up of two hydrogen atoms.

Pickling chemistry begins by thoroughly understanding all the phases and conditions of hydrogen. Atomic hydrogen is represented by the chemical formula, 2H. When two atoms of hydrogen unite to form a molecule of hydrogen the chemical formula is H_2. The numerical values for the molecular weight and relative density of a gas referred to hydrogen (=2) are the same. That is, molecular weight = relative density (H_2=2). If, therefore, the molecules of hydrogen, oxygen, nitrogen and chlorine contain two atoms, the atomic weights of these gases will be half the respective molecular weights.

But hydrogen is not always present as an acid because it separates as an ion in some compounds but not in others. Ions are atoms, or groups which carry a positive or negative charge of electricity, and they are formed by the dissociation of the electrolyte in the solution. Each molecule, on dissociation, furnishes two kinds of ions with equal and opposite charges of electricity. The anions go to the anode and the cations go to the cathode.

An acid therefore is a compound which yields hydrogen ions when dissolved in an ionizing solvent. A compound becomes an acid only when it is ionized with hydrogen ions.

There are four acids commonly used in pickling, sulphuric, muriatic, nitric, and hydrofluoric. Of the four sulphuric is by far the most important. The acid used in pickling varies over a considerable range, but by far the greatest amount which might generally be spoken of as a weak solution, is about 10 per cent.

Sulphuric acid may be apparently greater than 100 per cent strength. This is due to the mixtures of 100 per cent sulphuric acid, H_2SO_4, and its anhydride, SO_3. The latter may be considered potential sulphuric acid, requiring only union with water to make it actual sulphuric acid; hence, mixtures of sulphuric anhydride with the acid have many characteristics of a more concentrated acid than 100 per cent product. While sulphuric anhydride, SO_3, sulphuric acid, H_2SO_4, and its hydrates, $H_2SO_4.n\,H_2O$, are definite chemical individuals, the chemical properties of their mixtures vary smoothly, though passing through maxima and minima, from the most dilute acid to the simple SO_3.

An example of the different reactions taking place between metals and sulphuric acid of different strengths is given by the behavior of bivalent sulphuric acid towards zinc. At concentrations from H_2SO_4 (100 per cent) to $H_2SO_4.5H_2O$ (52 per cent) the gaseous products of the reaction are H_2S and H_2; with $H_2SO_4.6H_2O$ (48 per cent) the only gaseous product is H_2. In the former case the metal is oxidized and the acid molecule completely broken up; in the latter the hydrogen is simply replaced by the metal, or, more precisely, the positively charged hydrogen ion has transferred its charge to the metal and escaped as a gas, the metal dissolving as an ion.

The presence or absence of the oxygen of the air makes a great difference in some cases. With some metals under conditions of temperature and concentration where no action would take place with sulphuric acid alone, the presence of air will cause the metal to be attacked.

Dry hydrogen chloride gas has practically no action on metals. On the other hand hydrochloric acid is

chemically the most active of the three as an acid (as distinguished from activity in oxidation, reduction or the like), contrary to the popular conception. Sulphuric acid, because of its comparative nonvolatility, expels hydrochloric acid when heated with chlorides, and nitric acid; being a strong oxidizing agent, it attacks substances such as copper not affected by hydrochloric acid alone; but in purely acid reactions, that is, those involving the hydrogen ion, hydrochloric acid is the most active. Since hydrochloric acid is not an oxidizing agent, it does not attack those metals which follow hydrogen in the electromotive series, such as arsenic, copper, antimony, bismuth, mercury, silver, palladium, platinum and gold provided no oxidizing agent is present.

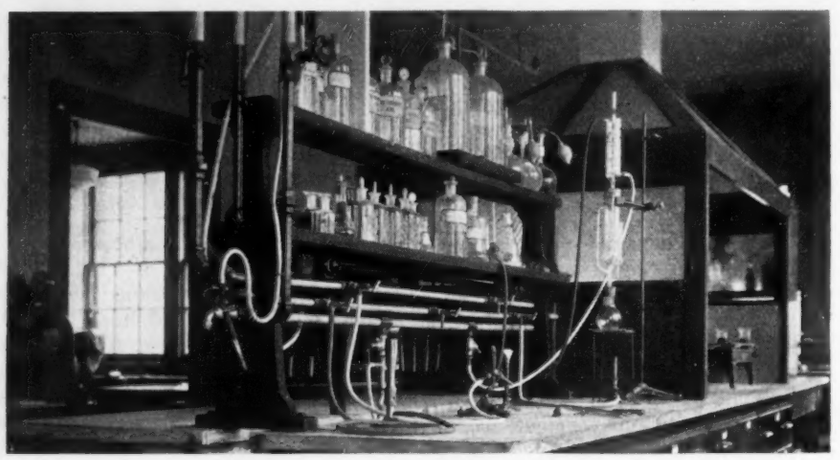


FIG. 26—LABORATORY IN WHICH PICKLING SOLUTIONS ARE TESTED

The other metals it attacks more or less violently. Among oxidizing agents are air, oxygen and nitric acid. Hydrochloric acid is a univalent acid.

Commercial nitric acid, diluted and concentrated, attacks almost all metals except the noble metals. Being a strong oxidizing agent, it is reduced by the metal acted on. However, if nitric acid is pure and free from nitrous acid, HNO_2, it does not react with metals as does the ordinary acid, which always contains traces of nitrous acid. Metallic lead is attacked to a slight extent by both concentrated and dilute pure nitric acid as well as by nitrous acid, and by both to an even greater extent. Nitric acid acts differently from sulphuric, hydrochloric and most other acids on account of the fact that it enters into reactions as an oxidizing agent, as well as an ordinary acid group.

Hydrogen fluoride, HF, is manufactured from calcium fluoride, the hydrofluoric gas being caught in distilled water. The aqueous solution thus obtained has to be kept in vessels made of lead, rubber or paraffin, as glass interacts with the acid with great rapidity. Metals like zinc and magnesium interact with hydrofluoric acid with evolution of hydrogen. The most remarkable property of hydrofluoric acid is that it interacts readily with sand, silicon dioxide, SiO_2, giving silicon tetrafluoride, SiF_4, a gas, and water.

No other acid is able thus to attack the oxide of a typical nonmetallic element. This explains why sand covered castings should be pickled in a mixture of hydrofluoric and hydrochloric acids; the hydrofluoric acid to remove or dissolve the sand, and the hydrochloric acid to dissolve the scale or iron oxides.

The reducing action of nascent hydrogen and of metals depends upon the conversion of the neutral hydrogen or metal into positively charged cations. Jeffries and Archer state that:

"At ordinary temperatures hydrogen gas does not penetrate iron or steel. Hydrogen can be kept in steel containers under high pressure without leakage. At a red heat, however, hydrogen diffuses readily through iron, presumably because of the opening of the space lattice and the decreased rigidity of the crystalline structure. At both low and high temperatures it is the hydrogen molecule which must penetrate the iron. If hydrogen is produced in contact with iron in a nascent or atomic condition, it readily penetrates the iron, even at room temperature. A familiar example of this is found in the embrittlement of steel by acid pickling, due to the absorption of hydrogen. The small size of the hydrogen atom as compared with the hydrogen molecule accounts for the fact that nascent hydrogen can penetrate iron at temperatures at which molecular hydrogen cannot."

The oxidizing action of nitric acid depends upon the reduction of the nitrogen. The extent of the reduction depends upon the concentration of the nitric acid and the nature of the substance oxidized. The more concentrated the nitric acid, the less it is reduced; the more concentrated the reducing agent and the stronger its reducing power the greater the reduction of nitric acid. Nitric oxide, NO, is commonly formed, but often other products such as nitrogen peroxide, nitrous oxide, nitrogen and even ammonia are produced.

Oxygen has a strong affinity for iron at high temperatures; hydrogen has little affinity for oxygen at high temperatures. The first iron oxide or scale of any importance is formed when a heat is stripped too soon. A black, sooty, dirty appearance comes over the surface of the ingot as soon as the mold is removed. At the proper stripping temperature the surface of the ingot will stay bare and clean. The oxide, or scale is light and probably consists of a mixture of FeO and Fe_2O_3.

The ingot after being stripped is taken to the soaking pits where it again is heated to about 2200 degrees. Blue oxide of iron, Fe_2O_3, is formed in an oxidizing atmosphere at a high temperature, without water, and without pressure. After the ingot has been in the pits until it is uniformly heated throughout, it is removed and sent to the rolls.

The ingot next is subjected to a new set of conditions, cooling down, loss of heat, pressure, water, steam and mashing and continually exposing new and fresh surface areas to the drastic quenching action of water. The conditions at hand are those which form roll scale, the black, magnetic oxide of iron, Fe_3O_4. The heavy scale formed on the ingots is crushed, cracked and broken off after the first few passes through the roughing rolls. Steam reacts on iron to produce iron oxide, Fe_3O_4, and hydrogen.

The reaction is not reversible because the hydrogen gas, one of the reaction products, is removed immediately. Bablik in his book entitled "Galvanizing," states that scale on plates consists of compounds of iron and oxygen, intermixed no doubt, with some metallic iron, analysis having shown for example the presence up to 70 per cent of Fe_3O_4 and about 30 per cent of metallic iron.

Camp and Francis in "The Making, Shaping and Treating of Steel," state:

"During the rolling of an ingot the scale must be removed from the surface to prevent the slab, and resulting plates, from being pitted. The process employed in removing the scale depends upon the kind of steel being rolled. For removing scale on low-carbon steel salt and water, the latter being sprayed on the slab

at high pressure and the former thrown on with scoops, are effective. In the case of high-carbon steel the scale sticks more firmly to the slabs, and burlap sacks are used, as necessary, in addition to salt and water. When nickel steel is rolled, coal is used in place of salt, and burlap is also thrown under the rolls. Brush or green twigs are often employed to serve the same purpose as burlap. The actions of all these substances are somewhat similar. In each case the substance is drawn under the rolls, which tend to bring it rapidly into close contact with the hot metal. The material thus caught by the rolls is gassified by the heat, and, in an effort to escape, the gases get beneath the scale and carry it off with them. Coal and burlap, being less volatile than salt or water, are carried a little farther between the rolls and give a more violent action. Nickel scale is the most difficult of all to remove, and if the first scale is melted off in the soaking pits and a second formed, it is almost impossible to clean it off. All nickel bearing slabs are cleaned first on one side, then turned over by cranes and cleaned on the other side."

Since water and steam are present in rolling steel it is interesting to note its behavior at temperatures found on the ingots being rolled. Steam alone is decomposed when heated to a high temperature. The higher the temperature the greater the amount decomposed, or dissociated into its elements, hydrogen and oxygen.

Hydrogen is produced by the action of water or steam on hot metals but in the making of roll scale the hydrogen is carried off quickly so that the reaction cannot reverse itself. It is to be noted that chemical action is conditioned not only by affinity, but by the relative concentrations of the reacting bodies.

Scale on sheets also is the black oxide of iron, Fe_3O_4. The scale on forgings is the blue oxide, Fe_2O_3, and perhaps a little FeO. If water or steam is present they may also be Fe_3O_4. The typical high temperature blue forging scale however is mainly Fe_2O_3. The scale on pipe is the blue, Fe_2O_3, with some silica and smaller amounts of calcium and aluminum oxides from the bottom of the heating furnace. When water or steam are present, scale is in the form F_3O_4.

The iron oxides and scales so far discussed have dealt mainly with the iron and steel at high temperature with excess, or an abundant supply of oxygen available. Before the steel in the form of bars, flats, rounds, etc., reaches the pickling tanks, however, it is subjected to a new set of conditions; the iron oxides, FeO, Fe_2O_3, and Fe_3O_4 are subject to corrosion, air, moisture, water and carbonic acid. The mill scales then are subjected to oxidation at low temperature, without pressure, in the presence of water and perhaps acids. That iron oxidizes, or dissolves in all solutions containing appreciable quantities of hydrogen ions is well known. This chemical relationship between iron and hydrogen is the primal cause of rusting.

The iron oxides and scales most commonly encountered in pickling are practically all of these iron oxides singly, or together. A piece of forged steel showed the original Fe_3O_4 scale formed in rolling; it showed various

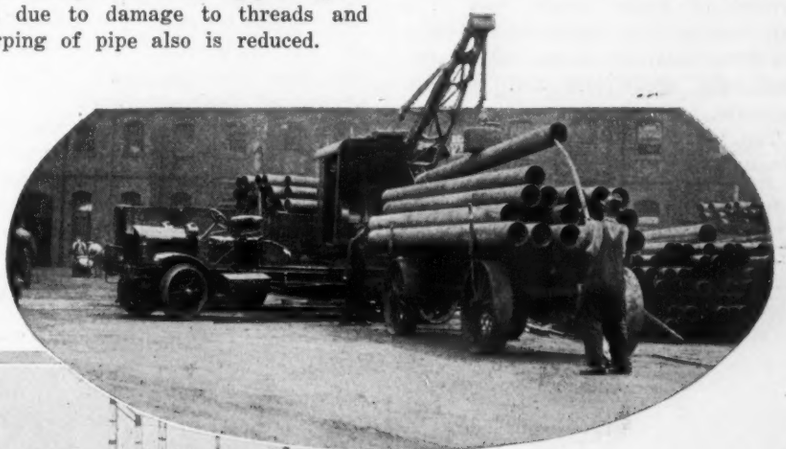
(*Concluded on Page* 684)

Magnet on Truck Crane Speeds Up Handling Operation

AN INCREASE of 60 per cent in the speed of loading and unloading pipe is reported by the East Ohio Gas Co., Cleveland, after equipping a truck crane with a 22-inch, 230-volt pipe-handling type of magnet, in place of a hook block. The crane is mounted on a 5-ton truck, and the illustrations show it unloading pipe from cars, and loading a trailer from stockpile. The following unloading speeds have been recorded: 1½ to 2-inch pipe, three hours per car; 3 to 4-inch pipe, two hours per car; 6 to 8-inch pipe, one and one-half hours per car; 10-inch and over, one hour per car.

Additional saving resulted from the fact that with the magnet in use the number of men for handling 1½-inch to 4-inch pipe was reduced by two, while the number was reduced by four in handling 6 to 8-inch pipe. Spoilage due to damage to threads and warping of pipe also is reduced.

The magnet is excited by a generator mounted in the rear of the crane cab and driven by a gasoline motor, which also operates the crane. This is a compact, mobile unit by means of



which the company is able to serve several yards in different localities. The magnet can be quickly detached and hook block substituted for field work, such as laying pipe, or a clamshell bucket can be used for excavating or handling other material. The company unloaded a 50-ton car of soft coal in one and one-half hours, with clamshell bucket. The crane illustrated was built by the Universal Crane Co., Cleveland, and the magnet was manufactured by the Electric Controller & Mfg. Co., Cleveland.

The A.B.C. *of* Stainless Steels

Ten Years' Experience in Manufacture and Use of Corrosion Resisting Steels Now Permits Classification of All Current Brands in Three General Groups

By Frank R. Palmer

IT IS not always easy to arrive at the fundamentals of a subject. The larger the field and the more complicated its vicissitudes, the more difficult it becomes to sift a problem to its essentials. The fundamentals of any problem usually are not evident during its early history, and it becomes possible to determine broad laws only after a great deal of specific information has been accumulated. During the development stage it is inevitable that mistakes will frequently occur.

In a new material such as "stainless steel" we have a field broad enough to satisfy the most ambitious investigator, and entirely too broad to suit the average consumer. So-called stainless steels are manufactured by many different mills under a variety of trade names, and it is only natural that published and written data regarding them may be contradictory, incomplete and even inaccurate.

Ten years' experience in the manufacture and use of stainless steels has added enormously to our knowledge and it is now possible to derive from the extensive data available some fundamentals which will greatly assist the consumer in investigating, not only the metals themselves, but their fields of application. Until the problem is reduced to an exact mathematical science, a certain amount of cutting-and-trying is inevitable, but in the meanwhile there is no reason why we should not take advantage of the available data for pointing the way to a solution.

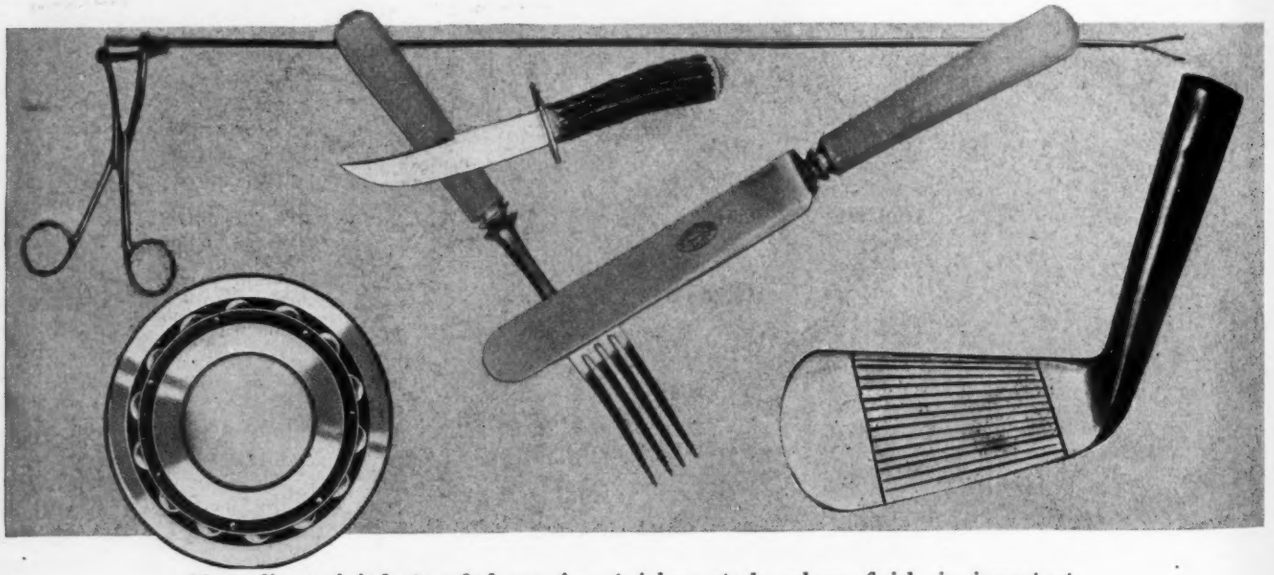
The author is identified with the metallurgical department, Carpenter Steel Co., Reading, Pa.

Brands Are Grouped

Today dozens of brands of corrosion-resisting or stainless steels are made in this country, but all can be logically and accurately classified into three general groups, which may be designated as A, B and C. The rules which govern this sub-division are so fundamental and important that they may be justly called the "A-B-C of Stainless Steel."

Each group of stainless metals is characterized by certain properties which are common to all steels falling in that group. The *exact* properties of individual steels in a certain group will vary considerably depending upon the percentage of carbon and chromium, and to a lesser extent upon special additions of manganese, silicon, copper, aluminum, tungsten, molybdenum, etc. It does not, therefore, follow that all steels within a given group are interchangeable in their application, and we must still take cognizance of brand names and detailed analyses. On the other hand, it should be emphasized that all corrosion resisting steels fall into one of the three groups and must, therefore, exhibit the general peculiarities of that group.

One of the most common and serious errors which has characterized the past history of stainless steels is the disposition on the part of many to use the "pigs is pigs" argument and condemn or condone all stainless steels on the performance of one grade or group. The three groups of stainless steel have little in common one with another; in fact their common properties may almost be comprehended by the statement that "they are all steels containing chromium and all of them have corrosion —or heat-resisting properties of some



Many lines of industry find use for stainless steels where finish is important

type or another." The three groups should not become confused.

For sake of brevity and simplicity the general properties of each group of stainless steels have been tabulated and are presented in this form. It is not possible within the limited scope of such a tabulation to deal fully with all details and exceptions, and further no effort has been made to extend the table beyond the mere delineation of group characteristics. There is a considerable choice of brands available in each group and they will not all serve equally well for a given purpose.

In the table accompanying it should be noted under the head of "Analysis" that Group A has for its top limit about 14 per cent chromium, while Group B has for its lower limit about 16 per cent chromium. Steels containing from 14 to 16 per cent chromium occupy a sort of "no-man's land" and partake of the properties of both groups. It must be understood that these group limits are not rigidly set, but fluctuate somewhat dependent upon the other elements contained in the steel. For example, stainless iron containing about 0.10 per cent carbon may contain up to about 14 per cent chromium and still remain in Group A. When the carbon is raised to 0.30 per cent the chromium can be increased to 15 per cent or even 16 per cent and the steel will still exhibit the properties of Group A. The introduction of high-manganese or nickel will also tend to raise the chromium limits of Group A and the introduction of silicon or aluminum will tend to lower the chromium limits of Group A. These details and border-line cases are best referred to steel manufacturers who are thoroughly familiar with the properties of these grades or else should be determined for each particular problem by complete experimental data.

The table applies to all high chromium corrosion resisting steels regardless of brand names or the identity of the manufacturer.

The A. B. C. of Corrosion Resisting Steels

	A	B	C
ANALYSIS:	Chromium less than about 14 per cent; carbon less than about 0.40 per cent. May contain small percentages of tungsten, copper, nickel, silicon, molybdenum, etc. This group is magnetic.	Chromium more than about 16 per cent; carbon less than about 0.40 per cent. May contain small percentages of copper, nickel, silicon, molybdenum, tungsten, etc. This group is magnetic.	Contains enough chromium and nickel to make steel austenitic and nonmagnetic. Usually contain twice as much chromium as nickel or vice versa.
HEAT TREATMENT:	Respond to hardening, tempering, and drawing. Resulting physical properties depend on analysis.	Heat treatment not recommended. Are naturally soft—usually having a Brinell under 200 and seldom over 250.	Do not respond to heat treatment.
TOUGHNESS	Are structurally dependable. Are not brittle in sharp-notched sections or under impact	Have low impact resistance especially in notched sections. Not dependable for bolts and similar notched parts when used under impact.	Extremely tough at all times. Thoroughly dependable for any type of shock service within the capacity of their strength.
GRAIN GROWTH AT HIGH TEMPERATURES:	Not subject to excessive grain growth at incandescent temperatures. Thoroughly dependable at any temperature for supporting any load or shock within their carrying capacity.	This group is divided according to grain growth: The simple chromium irons and those containing high silicon or aluminum are subject to excessive and dangerous grain growth and become very brittle. Grain growth is reduced by use of carbon, manganese, copper and nickel. Some steels containing these elements are not subject to grain growth at all.	Do not become brittle due to grain growth—thoroughly dependable for high temperature service.
HOT WORKING QUALITIES:	Readily forged, pierced or rolled. Air harden on cooling.	May be forged, rolled or pierced. Those steels subject to grain growth must be heated very quickly. Those not subject to grain growth are heated in the usual way.	May be forged, rolled or pierced. Become work-hardened progressively below 1800 degrees Fahr. Do not air-harden.
COLD WORKING QUALITIES:	Can be cold drawn into wire, cold rolled, bent, formed, upset, coined and deep drawn.	Can be cold drawn into wire, cold rolled, bent, formed, upset, coined and deep drawn. Not quite as easily worked as Group A with equal carbon content.	Can be cold drawn into wire, cold rolled, bent, formed, upset, coined and deep drawn. Work-harden twice as rapidly as Group A.
MACHINABILITY	Machine readily with properly designed tools.	Machine readily with properly designed tools.	Very difficult to machine. This is an outstanding objection to this group.
RIVETING:	Make excellent cold rivets. Not recommended for hot rivets driven above 1500 degrees Fahr. on account of air-hardening.	Due to low impact values, not desirable for either hot or cold rivets.	Excellent for either hot or cold rivets. Hot rivets may be driven at a high temperature.
WELDING:	Can be welded autogenously and by electric arc or resistance. Weld air-hardens. No grain growth.	Can be welded autogenously and by electric arc or resistance. Those metals subject to grain growth become very brittle adjacent to the weld. Those metals not subject to grain growth yield satisfactory welds.	Can be welded autogenously and by electric arc or resistance. Weld does not air harden and is very tough. This is an excellent group for welded products.
CORROSION RESISTANCE:	Very satisfactory for resisting weather, water and many organic and inorganic corrodents.	Possesses corrosion resisting properties superior to Group A.	Corrosion resistance depends largely upon chromium content. This group will resist some types of action that Groups A and B will not. With chromium over 16 per cent the resistance is excellent.
SCALE RESISTANCE:	Useful for temperatures up to about 1500 degrees Fahr.	Superior to Group A—recommended for temperatures above 1500 degrees Fahr.	The high chromium steels are as good or better than steels of equal chromium in Group B.
STRENGTH AT ELEVATED TEMPERATURES:	Much better than straight carbon steel for temperatures up to 1000 or 1200 degrees Fahr.	Steels subject to grain growth not safe at high temperatures. Steels not subject to grain growth are better than Group A above 800 degrees Fahr.	Better than Group B at temperatures over 1000 degrees Fahr.

Fig. 1—Realism and careful detail shown in the cornstalk fence

Can ORNAMENTAL CAST IRON *Come Back?*

Present Trend in Architectural Tastes of American Public Points to Revival of Recognition of Grace and Artistry of Gray Iron—What Does It Mean to Foundry Industry?

DURING the past quarter-century, the taste of the American public in architecture has undergone a marked change. The ginger-bread houses of the "nineties" have given way to homes of simpler and more pleasing design. While architectural atrocities still are being designed and constructed—in most cases to please the outlandish whims of eccentric individuals—the majority of modern residences conform to the established principles of good design.

This improvement is due largely to the fact that the planning of American houses has passed from the hands of carpenters to those of professional architects and contractors. More care and thought is being expended on design and construction details by owner, architect and builder than ever before. This specialization is responsible for a definite trend of development, in which some of the best features of Old World architecture are being incorporated in designs which are distinctly American in application.

One of the interesting phases of the evolution of house planning is the apparent tendency toward the revival of architectural details which were abandoned along with the jig-saw or ginger-bread style of house. For instance, ornamental iron—embracing wrought and cast pieces—now is regaining favor. For proof of this, one has only to scan the pages of any periodical devoted to home building or to examine the metal decorations on the medium and high-priced residences of recent construction.

In many houses conforming to the Georgian, English and Spanish types, the simplicity of brick or stucco walls sometimes is relieved by small balconies, railings, gates and lamp

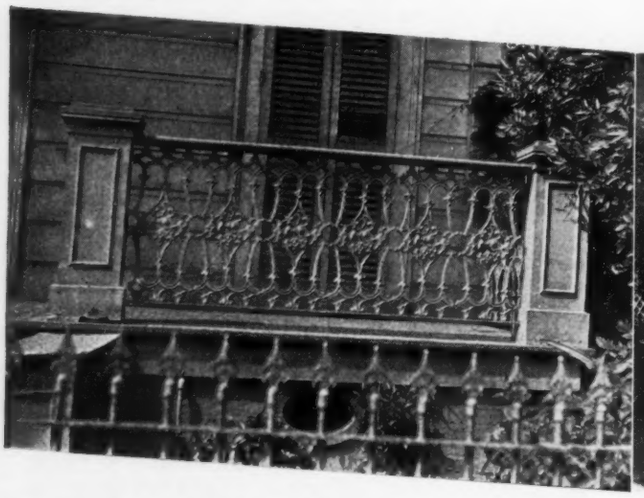


Fig. 2—Railing panel of cast iron with wooden posts. Fig. 3—Cast iron railings around the porch on the steps distinguishes a home in the garden district of New Orleans

brackets of ornamental wrought or cast iron.

From the standpoint of the foundry industry, the apparent revival of ornamental gray iron brings forth the interesting question of whether or not the grace and artistry of the metal will be recognized as it was in the days before the Civil war. The extensive use of cast iron for decorative purposes in early American homes is described in the March 1 issue of *The Foundry*, Cleveland, by Edwin Bremer. The article is illustrated by reproductions of photographs of typical cast iron decorations supplied by I. T. Frary, director of publicity, Cleveland Museum of Art, Cleveland. Six of the 14 illustrations are presented here.

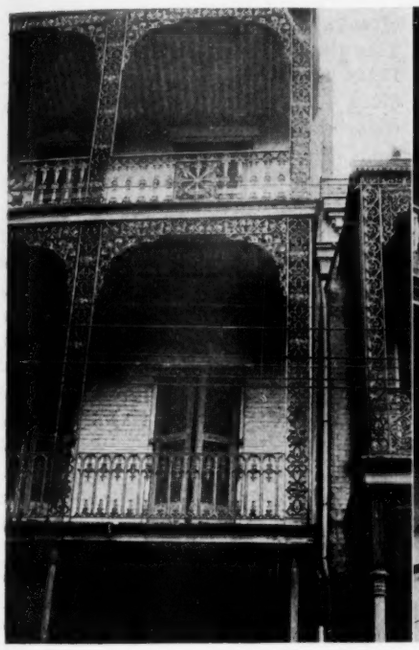
According to Mr. Bremer, the period when decorative cast iron was at its height in New Orleans was from 1850 to 1860. The Civil war ended all building operations and the subsequent impoverishment made revival difficult. Professor Woodward, Tulane university, New Orleans, an expert on the wrought and cast iron of that city, declares that "this type of architectural ornament passed out with the Civil war."

The first impetus for the development of decorative iron in New Orleans is traced by Mr. Bremer to the great fire of 1780, which swept away the central portion of the city including the commercial quarter, city hall and the homes of many leading citizens. Six years later another fire destroyed 212 buildings. These disasters prompted Baron Carondelet, then governor, to offer a premium for tile-covered roofs. As a result, the new homes followed the Spanish style with adobe or brick walls, arcades, inner courts, and ponderous doors and windows. The walls were covered with a thin plaster or stucco coat, colored light blue, cream or greenish gray, but seldom white.

Generally the walls were straight from base to parapet, unrelieved by horizontal band or cornice, and to break the monotony of the stark, bare walls, balconies or as they are known in New Orleans, galleries, with ornamental cast iron supports and railings were constructed. It seems rather odd that ornamental cast iron was used because the tendency of Spaniards was to employ wrought iron for this purpose. Several factors may account for this such as economy, the effect of the Napoleonic wars on trade conditions, and the ability of local foundries to supply such material in quantity at a cost far less than that demanded for wrought iron.

Other reasons given for the employment of cast iron were that once the pattern was made with its delicate and intricate lines, it easily could be reproduced any number of times. Another reason may have been that cast iron craftsmen were able to get away from architectural forms and ornaments of other nations. Further, the cast iron ornamentation has remarkable silhouette value.

Designs used for the gallery supports and railings in New Orleans were combinations of the tulip, grape vine, rose vine, morning-glory, live oak and cornstalk motifs. The cornstalk pattern is of particular interest because it is found in two widely separated sections of the United States. In designing the senate chamber and house of representatives at Washington, Benjamin H. Latrobe, the noted architect, conceived what are known as the cornstalk column in the north wing and the tobacco plant capital in the colonnade of the south wing. These were hailed as the creation of a distinctive American order. Latrobe resigned his position at the Capital in 1818 and removed to New Orleans.



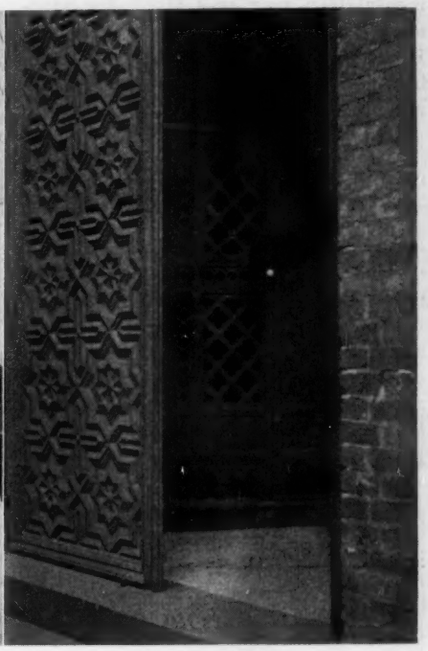


Fig. 4—A combination of Empire and Renaissance periods of decoration. Fig. 5—Galleries on Royal street with cast iron panels and supports. Fig. 6—Cast iron door at the main entrance of the Jesuit church

This cornstalk design also is found in some cast iron fences which adorned the estate of prominent families of New Orleans, one of which is shown in Fig. 1. One of the fences is around the old Leeds homestead which was built by Charles Leeds, head of the old Leeds foundry at which much of the decorative cast iron used at that time was produced.

The author of the article in *The Foundry* also reminds us that ornamental cast iron was used liberally in sections other than New Orleans. Old inhabitants of New York city can remember the grape vine and other designs which were used for the cast iron fences that enclosed the lawns of the homes in the residential section. Robert E. Masters, an old-time foundryman, states that he can remember back as far as 1854 when cast iron fences surrounded the homes on Thirty-fourth street, New York. Cast iron ornamentation was used to

a great extent in Buffalo, Cincinnati, Youngstown, O., Philadelphia, Cleveland, St. Louis and other cities and towns too numerous to mention.

After some years of jig-saw houses, ornamented with inappropriate knick-knacks, and atrociously designed cast iron railings and balconies, a prejudice against this type of architecture arose and the pendulum of good taste swung to the opposite extreme. Since cast iron was used extensively during the decadent period, it came under the ban and for many years was neglected.

But now that the tide of public favor has turned, producers of ornamental iron may well study the modern possibilities of their product. How this opportunity is being grasped by a number of companies will be recorded in subsequent articles.

Features of Pickling

(*Concluded from Page* 679)

compounds of $Fe_2O_3.nH_2O$ in the form of rust; and it had heavy blue ferric oxide Fe_2O_3 on one end that had been forged. No doubt some metallic Fe and FeO were mixed with these other oxides. This steel and others like it are pickled in sulphuric and muriatic acids. The chemical reactions which take place are as follows:

Sulphuric acid:

$$Fe+H_2SO_4=FeSO_4+H_2$$
$$FeO+H_2SO_4=FeSO_4+H_2O$$
$$Fe_2O_3+3H_2SO_4=Fe_2(SO_4)_3+3H_2O$$
$$Fe_3O_4+4H_2SO_4=Fe_2(SO_4)_3+FeSO_4+4H_2O$$

Hydrochloric acid:

$$Fe+2HCl=FeCl_2+H_2$$
$$FeO+2HCl=FeCl_2+H_2O$$
$$Fe_2O_3+6HCl=2FeCl_3+3H_2O$$
$$Fe_3O_4+8HCl=2FeCl_3+FeCl_2+4H_2O$$

The chemistry of the pickling solution is mainly one of oxidation and reduction, and the change of ferrous iron to ferric iron. The green color of the bath is due to ferrous sulphate, $FeSO_4$. There usually are large quantities of hydrogen gas present; hence a pickling solution most of the time is under reducing conditions.

The instant the acid acts on the iron two molecules of nascent hydrogen are liberated. These atoms transfer their charge to the iron and immediately combine to form a molecule of hydrogen gas. The hydrogen gas escapes up, through the pickling solution and it is the removal of this gas which keeps the chemical reaction going always in this direction.

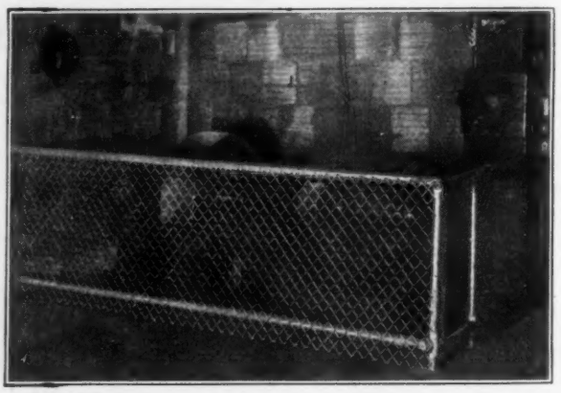
When inhibitors are employed the organic compound is reduced by the two positively charged atoms of nascent hydrogen. The hydrogen evolved does not form a hydrogen molecule, but is eliminated. By eliminating the molecule of hydrogen gas the reaction is stopped, or since this reaction depends on the formation of the hydrogen molecule and the removal of hydrogen gas, it cannot take place. Hence there is no attack on the steel as long as the inhibitor is present in any appreciable amount.

The chemistry of the black deposit, or black smudge of pickling solutions is complicated and perhaps due to a number of factors and conditions. In electrolytic pickling often heavy deposits of carbon collect on the material. In pickling high-carbon steel a black deposit of carbon is also obtained. In pickling low-carbon steel often a black smudge is encountered. This possibly may be undissolved particles of Fe or FeO in a highly oxidized heat. In sulphuric pickles containing arsenic under certain conditions the black deposit of sooty material may be extremely finely divided particles of arsenic thrown out by the plating action. In the enamel industry nickel solutions often are used and the black deposit may be a black form of metallic nickel or nickel oxide. The same black deposit can be obtained by replacing, or coating iron with antimony salts. The black deposit here is probably black antimony. In dissolving commercial iron in sulphuric or hydrochloric acids there remains almost always an undissolved residue consisting chiefly of carbon.

The chemistry of pickle fumes is the chemistry of the gases liberated in pickling iron and steel with the ordinary commercial acids. Iron displaces hydrogen easily from dilute acids. Steel and cast iron, which contain iron, its carbide, and graphite, give with cold dilute acids almost pure hydrogen and the carbide and graphite remain unattacked. This fact is made use of in a practical way by pickling off extremely heavy rust in dilute muriatic acid over night. The rust is removed and the iron is not injured.

The metallic iron of commerce is never pure, but usually contains more or less iron carbide, iron sulphide, iron phosphide, iron silicide, and corresponding manganese compounds and graphite. On dissolving in sulphuric and muriatic acid, hydrogen contaminated with small amounts of hydrocarbons, hydrogen sulphide, mercaptans, phosphuretted hydrogen, and silicon hydride is given off. It is these impurities that give the gas its unpleasant odor. Steam vapor and acid also are expelled at high temperatures. In pickling with hydrofluoric acid the fumes contain silicon tetrafluoric which is driven off as a gas.

Machinery Guards Provide Accident Protection



LAST year nearly 100,000 factory employes were injured by machinery because of poor or inadequate guards. This astounding loss of manpower has cost industry an incalculable sum in lost time, compensation, reduced production, increased spoilage of materials, delayed deliveries and countless other factors. There is, therefore, a monetary as well as moral reason for adequately guarding machines. In the accompanying illustration is shown a home-made guard placed around a motor and generator, this guard being made from a piece of chain link fabric supported on a framework of pipe. Machine guards of this character are appreciated by employers not only because they afford positive protection but because they offer no obstruction to light or ventilation. The chain link fabric used in this type of guard is a product of the Page Steel & Wire Co., Chicago.

Finishing by Machine Supersedes Costly Scraping by Hand

By L. Sichel

WHEN the finishing by grinding of the ways on shallow machine tool castings had become an accomplished fact, and it was found possible to obtain interchangeable assembly fits by grinding to gage, the confidence of the machine-tool building industry in the abrasive method of way finishing was established definitely. A natural desire then came to progressive work managers to extend the benefit of the abrasive wheel to their heavy castings as well, such as beds, uprights, columns, etc.

Involved Changes in Design

While machinery for shallow work had been on the market for a number of years in the "traversing work" way grinder as shown in Fig. 1, which machine traverses the comparatively shallow work such as rails, saddles, slides, etc., under the action of the stationary wheel heads, a suitable machine for dealing with work of considerable height was not available immediately. In considering the design of adequate machinery for this purpose it may at first sight appear immaterial whether the motion is imparted to the wheel or the work either method involving the movement of comparatively heavy loads. On further analysis, however, it becomes apparent that as the work is rather high it was not advisable to increase this height further by placing it on top of a bed which to prevent sagging had to be of liberal cross-section vertically.

Moreover, in keeping the work stationary and traversing the wheel head on a bed, the further advantages of better control of the work and simpler constructional features of the machine itself were obtained. From these considerations the initial way grinder was designed and built a few years ago which machine is shown in Fig. 2.

Viewed from present day developments it was a rather crude affair though a high degree of accuracy has been obtained from the machine. This accuracy is, however, not entirely due to the merits of the machine, but in an equal measure to the knowledge of the machine possessed by the operator who, being familiar with the weak points of his machine, can make up for them by compensating for errors.

Deflection Is Minimized

Fortunately tactics of this kind are necessary with an up-to-date type of grinding machine such as illustrated in Fig. 3. This machine is furnished with a radial arm rigid enough to admit of no deflection that is practically noticeable even with grinder heads located in the extreme position. The grinder is provided with two grinding heads which can be put to work at the same time thus doubling production. All the refinements of way grinding

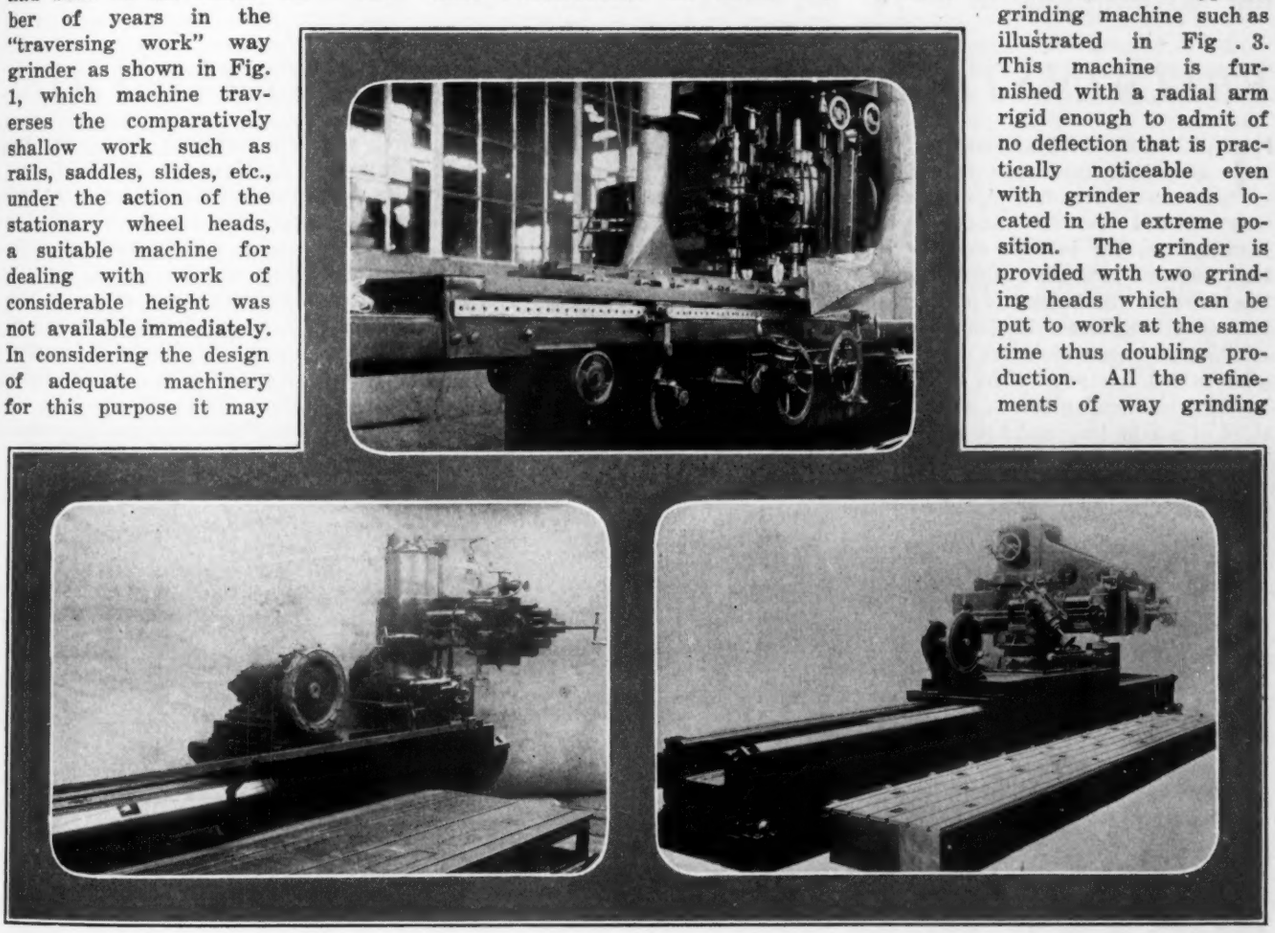


FIG. 1—UPPER—TRAVERSING SHALLOW-TYPE WORK ON A WAY-GRINDING MACHINE FITTED WITH STATIONARY GRINDING WHEEL HEADS. FIG. 2—LEFT—A PROTOTYPE OF THE TRAVERSING WHEEL WAY-GRINDING MACHINES USED TODAY. FIG. 3—RIGHT—PRESENT-DAY TRAVERSING HEAD MACHINE EQUIPPED FOR GRINDING WITH TWO HEADS SIMULTANEOUSLY

such as systems of very sensitive spirit levels for setting heads to accurate angles, important in synchronous working with several heads and in obtaining interchangeable angle work are incorporated. The operator rides on the platform from which he can control the heads with ease and all levers, hand-wheels, etc., for elevating the radial, starting, stopping, etc., are within his reach, independent of the height of the work.

One difficulty faced the designer in creating the "traversing head" machine and that was the counterbalancing of the heavy radial that carries the grinder heads. Whereas, in the traversing work type machine this radial can without much difficulty be exactly counterbalanced by weight, this method was not permissible in the traversing head type since at best it would involve the constant transportation of a heavy weight. A good solution of the problem was found in the hydraulic pressure and by an ingenious and fully automatic system of balancing, the load of the heavy radial is taken off the elevating screw which is feed screw at the same time thus ensuring the highest precision from this part of the mechanism. This coupled with the high precision direct motorized wheelheads as well as the other features of the machinery make it possible to obtain the extraordinary degree of accuracy which in the late type machine having a grinding length of 20 feet is within 0.0004-inch over its entire range.

By judicious means it is thus possible to eliminate all errors which deflection or play introduce and would otherwise defeat the object which is to generate surfaces so true and angles so accurate that they will interchangeably mate. This object has been fully attained and further progress thus made by the abrasive wheel.

While thus technically, the problem of finishing ways by the abrasive method has been solved and a quality of bearing obtained not commercially possible with handwork, the question arises, will it pay? Is a machine of this kind economically justifiable? The answer is in the affirmative and it can readily be proven. The abrasive wheel covers the whole width of the way and can perform the work of finishing ways in a fraction of the time required for scraping. This will become less as the length and width of ways increases and it is thus easy to understand that even more than a conventional type of way grinder, the traversing head type machine pays its way in the finishing of flat bearings on large machine tool castings.

Will Exhibit in Russia

Fourteen American manufacturers will have exhibits in the permanent machine tool exhibition which will open in Moscow, Russia, next May, according to an announcement of the Amtorg Trading Corp., New York. The exhibition, to be housed in a special $1,000,000 building, is sponsored by the Orgametal Co., a soviet engineering organization which now is designing four new machine building plants to be built in the soviet union at a total cost of $34,000,000. The Orgametal, the first organization of its kind in Russia, is developing new production methods to be introduced into the whole soviet metal industry.

Australia's imports of hardware in the fiscal year ended June 30, 1926, gained over 1925.

BRITAIN STAGES ITS LARGEST INDUSTRIAL FAIR

THE ninth British Industries Fair was held this year from Feb. 20 to March 2, and once more was divided between London and Birmingham, the heavier exhibits being featured in the Midland city. The fair was the largest of all British industrial displays. The number of exhibitors increased from 600 last year to 900 this year. The exhibition building in Birmingham is about one-third of a mile long and 250 feet wide. If the booths were placed end to end they would extend eight miles. The displays were divided as follows: Brassfoundry, hardware and ironmongery, 228; metals, 42; construction, building and decoration, 82; power, lighting, heating, cooking and ventilating, 204; engineering, 210, and smaller sections, 114. The fair attracted over 80,000 visitors, including the king and queen.

Birmingham being a great nonferrous metal center, the principal exhibits were of this class. However, iron and steel hardware, drop forgings, stampings, springs, rotary and hydraulic pumps, hot plate presses and packing and conveying machinery also were featured in a well arranged style at the various sections.

Great prominence was given to the gas industry in which 100,000 men are employed and £160,000,000 capital invested. Ninety per cent of the British population cook by gas. It is used in 9,000,000 homes and factories, and in 3000 industrial processes.

Section of the exhibition hall in Birmingham, Eng. The booths placed end to end would reach eight miles

Large Uses of Steel in Small Ways

Steel Stairs

FIREPROOF properties of steel have aided greatly in expanding its application. As steel made the skyscraper possible, so the multiple-storied building has widened the use of steel. Wood is being replaced rapidly in the construction of stairs. Cast iron, which constituted the great bulk of stair construction other than wood about 20 years ago, is being replaced now by steel, both pressed and rolled. One large manufacturer estimates that 95 per cent of the stair work installed in buildings today is manufactured solely of pressed or rolled steel sections.

Although there are several thousand ornamental ironwork shops in the United States, many of which produce steel stairs, the principal fabricators total but several dozen in number. An estimate of the aggregate of steel entering into stair construction annually is difficult to obtain, inasmuch as no data on requirements is available from many small fabricators. The larger interests, however, account for approximately 15,000 to 20,000 tons a year. Consumption of individual companies ranges from a few tons to 2000 tons. An average 20-story building is reported to require 40 to 60 tons of steel for fabricating only the stairs.

For treads and risers, 10 to 14 gage sheets generally are used, the gage depending usually on the width of stair. Stair treads also are being made of diamond pattern rolled steel floor plates, usually $\frac{3}{16}$ or ¼-inch in thickness. Typical requirements of one small fabricator include ⅜ x 1½-inch flat bars, 1½ x 1½ x $\frac{3}{16}$-inch angles, 2 x 2 x ¼-inch angles, ⅛-inch plates, ¼ x 8-inch, ¼ x 10-inch and ¼ x 12-inch plates.

The customary practice in using sheets and plates for stair risers and treads involves only the bending operation of a power brake. In assembling the individual units, one company uses an interlocking construction and prebuilds its stairways before shipping to point of installation. On the steel tread a variety of materials are used, including mastick fill, marble, slate, cement, etc.

For stringers, rolled steel zees, pressed steel, or light structural channels generally are used. The gage of plate and depth of stringer usually is determined by the span and width of stair. One part of stairway construction that has not been dominated by steel as much as other parts is the newel posts and railings. Cast iron, bronze, and other type newel posts often are used in conjunction with steel stairways. When made of steel, pressed sheets are used. It is in the newel posts and railings that ornamental iron has been used most widely in stairways. In these railings a considerable tonnage of steel bars is employed. The usual sizes are ¾ and ⅝ inches square.

Stringers vary in size with type of stair, one manufacturer using for standard construction 14 x $\frac{3}{16}$-inch plate, bent to form string 11½ x 1½-inch. Stringers are fastened together with tie rods of ⅜-inch diameter. Drawn steel mouldings often are used on face stringers to cover string connections to newels. For fire escapes and heavy duty stairs such as in factories, pipe is used for railings.

THIS is the one-hundred eleventh of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the American tonnage.

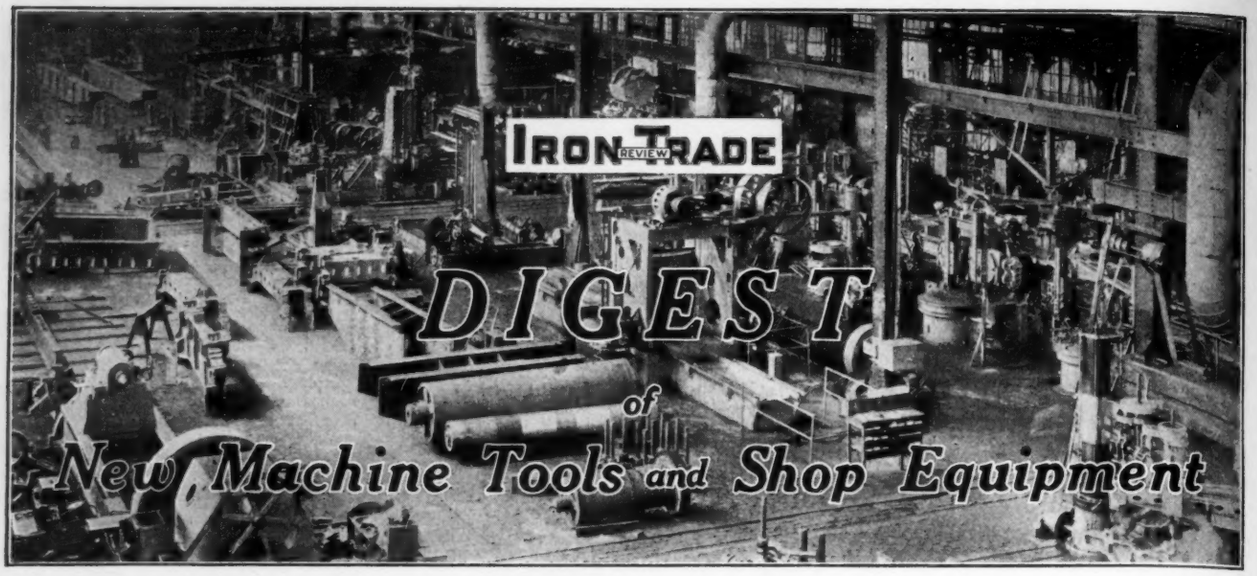
Among articles appearing every two weeks and not included in Vol. I containing 51 separate descriptions are:

Vacuum Bottles	*Suspenders*
Highway Guards	*Screw Hooks*
Numbering Machines	*Steel Bridging*
Joist Hangers	*Mail Boxes*
Straight Razors	*Steel Shelving*
Piano Wire	*Automobile Bumpers*
Type Molds	*Tire Chains*
Swords	*Bathroom Fixtures*
Paving Guards	*Snow Fences*
Reaction Kettles	

Want New Definition for Castings Annealing

Attention of steel foundrymen is called to A. S. T. M. tentative standard A-119-27-T, "Tentative Definitions of Terms Relating to Heat Treatment Operations." Under this heading the term "annealing" is defined as "a heating and cooling operation of a material in the solid state." This definition is necessarily broad in order to cover all types of annealing practice now in use by the trade. A full discussion of the subject appeared in the December issue of the *Bulletin* of the American Foundrymen's association.

It has been suggested that a specific term be proposed for steel foundry slow-cool annealing practice in which castings are heated above the critical then followed by furnace cooling. Those interested in this question are invited to send their comments and criticisms to A. W. Lorenz, chairman, A. F. A. committee on heat treatment of ferrous castings, care of the Bucyrus-Erie Co., South Milwaukee, Wis.



Angle Head Drill Driven by Flexible Shaft

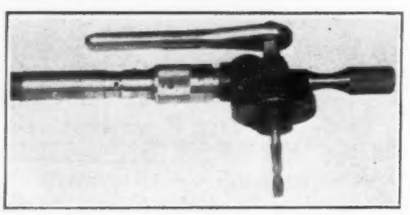
ITR No. 73

The Stow Mfg. Co., Binghamton, N. Y., has added to its line of flexible shaft equipment an angle head for drilling in out-of-the-way places. This tool, which is shown in the accompanying illustration, derives its power through a flexible shaft that may be driven by an ordinary shop electric drill or available motor or some similar portable power. It may be belted from a lineshaft. The flexible shaft furnished is of a convenient length. The angle head is of a modern construction, ruggedly built to withstand hard usage and renders efficient service. Ordinarily, it is furnished in ½-inch capacity, but may be had in other sizes with 1¼-inch screw feed with ratchet handle. The socket takes Morse taper shank drills and also a chuck where space permits. Among the uses for the head is the drilling of large castings too heavy to move.

Welded Hoist Chain Has Greater Strength

ITR No. 74

The Ford Chain Block Co., Philadelphia, believes that the principal factor in a chain hoist is the chain, which must have great strength, ability to withstand wear and must not stretch to any extent under heavy loads. This company now is making a high-carbon, electrically-welded chain for a hoist which it manufactures. Every link is proof tested with special instruments and when the chain is assembled it is again tested and must show an overload of 50 per cent over rated capacity. These hoists are built in capacities from ¼ to 20 tons and are of extremely rugged construction.



No. 73—Angle-head drill

Portable Hand Saw Will Cut at an Angle

ITR No. 75

Wodack Electric Tool Corp., 4627 West Huron street, Chicago, has developed a portable electric handsaw which, in addition to vertical sawing, provides for bevel sawing at angles

Iron Trade Review's Calendar of New Equipment

No.	Item	Builder	Comment	Date Described
50.	Straightening press	Sutton Engineering Co.	Straightens pipes, tubes, bars, shapes, etc.	Feb. 23
51.	Drum switches	General Electric Co.	For control of small cranes, hoists, machine tools, etc.	Feb. 23
52.	Sheet pack opening machine	Aetna Standard Engineering Co.	Handles packs up to 8 feet wide	Feb. 23
53.	Squirrel cage induction motors	Allis-Chalmers Mfg. Co.	Start on full line voltage	Feb. 23
54.	Geared head production lathe	Springfield Machine Tool Co.	Equipped with Timken roller bearings on spindle	Feb. 23
55.	Cupola blower	General Electric Co.	Automatically insures constant supply of air	Feb. 23
56.	Portable coiler for strip	D. A. Clark Co.	Handles cold strip up to 24 inches wide	Feb. 23
57.	Thread miller	Smalley-General Co.	Performs heavy work without chatter	March 1
58.	Bus bar supports	Westinghouse Electric & Mfg. Co.	Modified hollow square type	March 1
59.	Geared head lathe	Cincinnati Lathe & Tool Co.	Motor mounted in cabinet leg	March 1
60.	Spiral weld iron pipe	Naylor Spiral Pipe Co.	Grooved ends for victaulic couplings	March 1
61.	Limit switch	General Electric Co.	For magnetic control	March 1
62.	Straightening machine	Sutton Engineering Co.	Accurate straightening in single pass	March 1
63.	Radial rolling machine	Aetna-Standard Engineering Co.	Specially designed for disk sections	March 1
64.	Welding electrodes	Fusion Welding Corp.	Mild steel; for arc welding	March 1
65.	Valve face grinder	Landis Tool Co.	Semiautomatic and hydraulic	March 1
66.	Induction motor starter	Lincoln Electric Co.	Adjustable with automatic features	March 1
67.	Axle lathe	Consolidated Machine Corp.	Heavy-duty, center drive, oil-geared	March 1
68.	Gas welding outfits	Oxweld Acetylene Co.	For sheet metal and automobile repair	March 1
69.	Air grinder and sander	Independent Pneumatic Tool Co.	New design; balanced, vibrationless	March 8
70.	Knife blade grinder	Samuel C. Rogers & Co.	Automatic, sectional wheel	March 8
71.	Belt conveyor pulley	Jeffrey Mfg. Co.	Plain, bushed and roller bearing	March 8
72.	Dragline bucket	Harnischfeger Corp.	Electrically-welded, heavy-duty	March 8
73.	Angle-head drill	Stow Mfg. Co.	Attachment for flexible shaft equipment	March 15
74.	Chain hoist	Ford Chain Block Co.	Hand-operated; welded chain	March 15
75.	Electric hand saw	Wodack Electric Tool Corp.	Performs vertical and bevel sawing	March 15
76.	Lead hardening furnace	General Electric Co.	Pot-type, electrically heated	March 15

up to 60 degrees. This is accomplished by a tilting saw base which can be set and locked at any angle within this range by means of a slide and locknut. Another feature is a width gage for vertical sawing. This gage can be set for any width up to 6 inches and through its use various widths of strips can be sawed without the necessity for marking and with accuracy and uniformity. The saw is driven by a universal motor of special design which operates on both alternating and direct current with models for 110, 220 and 250 volts. Standard equipment includes one 11-inch and one 9-inch saw blade.

Lead Hardening Pots Are Electrically Heated

No. 76

General Electric Co., Schenectady, N. Y., has placed on the market a pot-type electric furnace for lead hardening, designed to operate at temperatures up to 1650 degrees Fahr. It is available in four sizes, having a capacity range from 75 to 250 pounds of steel per hour. The manufacturer claims this furnace consumes low current, although it utilizes the standard method of submersing the work in a bath of molten lead. The inner melting pot does not extend over the top of the furnace, and, as a result, little heat is lost by being conducted out of the pot. Features of the pot are listed as follows: Minimum current consumption; uniform quality of product; lack of contact of pot with shell or cover of furnace; use of direct heat, unmuffled heating unit of metallic resistor type; ease of pot removal; improved working conditions; and reduced fire hazard.

Engineers Outline Plans for Fuel Research

The recently appointed special research committee on fuels of the American Society of Mechanical Engineers has determined its course of action and now is engaged in collecting data preliminary to organizing actual research work. The specific general subjects recommended for research are as follows: 1.—Constitution of coal; 2.—carbonization of coal; 3.—preparation of coal; and 4.—coal utilization and abatement of waste in use.

To obtain exact and definite knowledge regarding research work now being carried on or planned, each member of the committee has been assigned the task of securing the desired information for his particular field. After the available data has been obtained, the committee proposes to decide upon the actual research activities to be inaugurated with plans for carrying them on and for securing the necessary personnel, funds and facilities. At this time, it is desired to bring the whole matter to the attention of all interested in fuels research—producers, users and the technical schools, as well as those concerned with research generally.

Officers of the special committee are as follows: Chairman, F. R. Wadleigh, consulting engineer, 1 Broadway, New York; vice chairman, A. C. Fieldner, chief engineer, bureau of mines, Pittsburgh; and secretary, Vincent G. Shinkle, consulting petroleum engineer, 11 Broadway, New York.

Will Dedicate Memorial Clock in Belgium

Artisans of France, England and America are fashioning the large four-dial clock and three-octave carillon of 36 bells for the tower of the new library of the University of Louvain, which will be dedicated at Louvain, Belgium, on July 4, it is announced by the Engineering Foundation. The clock and carillon are being given, at a cost of $80,000, by American engineering societies "as a memorial to the hundreds of engineers of this country who gave their lives for the defense of freedom, 1914-18."

The dedicatory ceremonies, to be attended by statesmen, educators, diplomats and engineers from many nations, including an engineering delegation from the United States, will celebrate both the American Declaration of Independence and the complete restoration of the historic Belgian library destroyed by the German armies during the World war.

Offers Graduate Work

The University of Michigan, Ann Arbor, Mich., recently prepared a new announcement of courses in chemical engineering in which is emphasized the opportunities for special study. In recent years there has been a demand from the industries for men with graduate training and this is reflected in the graduate work. During the present academic year 41 graduate students have been enrolled in the department of chemical and metallurgical engineering, of whom 22 already have the master's degree and are working for the doctorate.

The new East engineering building gives unusual facilities for advanced metallurgical work because of the close proximity of the foundry and forge shop with the pyrometric and metallographic laboratories. These units occupy about 40,000 square feet of floor space. The department of engineering research has important contacts with the metallurgical industries and several industrial fellowships will be available for graduate students next year. Application should be made by April 1. Copies of the bulletin may be secured by writing to the chemical engineering department of the university.

Plans Greater Eye Sight Conservation Work

Lawrence W. Wallace, Washington, has been re-elected president of the Eye Sight Conservation Council of America, an organization which is directing a national movement for eye conservation in education and industry. Mr. Wallace, who is executive secretary of the American Engineering council, actively directed the work of the Hoover elimination of waste in industry committee which found that much economic and social waste was attributable to defective vision among industrial workers.

Guy A. Henry, White Plains, N. Y., was again chosen general director of the council which from headquarters in New York is now conducting field activities among pupils, parents and teachers in the South. This work, in charge of Charles F. Southard of New York, will be extended to every state. Poor eyes, investigation discloses, is a factor in retardation among school children.

Expect London Tool Show To Break Record

The Machine Tool and Engineering exhibition, which is organized by the Machine Tool Trades association, will be held at Olympia, London, Sept. 5-22. This exhibition is held at intervals of four years, the last one having taken place in September, 1924.

The association announces that already, nearly all of the ground floor space and a large portion of the gallery has been sold. The demand has been greater than on any previous occasion, and there is every reason to believe that the exhibition will constitute a record, not only in the number of machine tools, woodworking machines, small tools, and accessories that will be shown, but also in the progress of design that has taken place since the last exhibition was held.

Editorials

Desks More Hazardous Than Mills
Visualizing Savings Gives Incentive
Three Seems To Be Steel's Lucky Number
One Way of Reading Steel Output
Not New Lines but Better Ones

Steel "Safer" Than Government

A STRIKING tribute to the steel industry's safety record is paid, indirectly, by the bureau of labor statistics. In the February issue of its *Monthly Labor Review*, the bureau is authority for the statement: "Accident rates among government employes are in many instances in excess of those of steel mills," and again: "The fact that 5 out of 10 government departments show declining rates and that these declines are sufficient to produce a slight favorable balance on the entire group is a reason for a degree of satisfaction. It cannot be very pronounced when it is observed that many of these rates are markedly in excess of those prevailing in the better steel mills."

The government report proceeds to set forth these frequency rates per 1,000,000 hours of exposure: For the printing office 4.05; for the treasury 5.04; department of labor 9.66; post office department 11.43; department of commerce 12.58; navy department 17.62; department of interior 19.09; department of agriculture 33.95; department of war 43.82. Other government services showed a rate of 10.34. The average rate for all government services, including 536,426 employes, in 1926 was 15.33.

In a large group of steel plants selected because they have been most successful in accident prevention work the frequency rate as reported by the bureau of labor statistics for 1926 was 6.8. This was a lower rate than for any of the government departments except printing and the treasury. The general average for the entire steel industry was 25.3. This was lower than the rate in the department of agriculture and the war department.

Railroad Buying Still a Guide

POSTWAR developments in the marketing and consumption of steel have been hard on the old barometers of the industry, the unfilled tonnage statement of the United States Steel Corp. being conspicuous as one now passe, but railroad buying is a standby that has stood the ordeal.

Compare in the following table the capital expenditures of the railroads, the percentage of the country's steel consumed by the railroads, and the annual totals of steel ingot production from 1922 forward. The comparison is limited to six years because it was in 1922 that IRON TRADE REVIEW inaugurated the custom of analyzing steel consumption.

	Railroad Capital Expenditures	Percentage of Steel Going to Railroads	Total Steel Ingot Production (Gross Tons)
1922	429,273,000	24.96	34,568,418
1923	1,059,149,000	31.02	43,485,665
1924	874,743,000	27.54	36,811,157
1925	748,191,000	22.34	44,140,738
1926	885,086,000	22.81	46,936,205
1927	771,552,000	20.37	43,040,916

Without exception, capital expenditures and the railroad percentage of steel consumption have moved in unison. Save only for one year, these factors have been in complete accord with the trend of ingot production. Apparently, the week-to-week record of car and locomotive orders, of structural material awarded for bridgework, and of track material placed in the buying season still afford a good index of the trend of production in general.

Smaller Waste; Larger Earnings

INDUSTRY is learning and applying the principle that a penny saved is a penny earned. The application is to waste prevention. Waste must be paid out of earnings. The larger an organization the greater aggregate into which a small waste grows. An extra drop of solder to each of thousands of cans each day eats a slice from profits. An extra shovelful of coal on each firing of all locomotives of a great railroad amounts to many tons in a year.

In earlier days little attention was paid to conservation of materials but the idea has been growing that profits will be larger if part is not absorbed in paying for preventable waste. Means of production have been made more efficient and

now the effort is being applied to the human element, to supplement results attained by mechanical equipment.

A large oil company is seeking, by an exhibit of small materials that may be wasted, to impress on employe-stockholders that their dividends are enhanced by saving and reduced by waste. A great railroad has translated the value of tie plates into freight ton-miles, indicating how much freight must be hauled over a division to pay for each one wasted. Locomotive firemen are schooled to use just enough coal to keep steam at an efficient level, no more.

Proof of the cumulative effect of small things is found in a recent government report on coal consumption by public utilities. From 1926 to 1927 the utilities reduced coal consumption 0.12 pounds per kilowatt hour. This is an ounce of coal. Yet the total savings in producing the electricity used by the country in 1927, on this basis, was 3,000,000 tons. At an average delivery value of $4 per ton this was a profit of $12,000,000.

Carriers Rounding Out Facilities

ORDERLY development of present railroad lines rather than creation of new lines and extensions is the logical program in the railroad engineering field for the immediate future. The need for new railroads and extensions has reached practical fulfillment, yet the roads are susceptible of great improvement. This was the view expressed by D. J. Brumley, of the American Railway Engineering association, at the recent joint convention of that association and the engineering division of the American Railway association in Chicago.

It was pointed out at the convention that possibilities of the future in railroad engineering work look to the double-decking and triple-decking of railroad trackage and facilities in large population centers where land values have become almost prohibitive to further acquisition of right-of-way. Important advances are likely in electrification of equipment. Many roads now are considering early steps in electrification at terminal points and for suburban transportation. The future likewise will see further improvement in the steam locomotive unit and development of internal combustion and storage battery locomotives.

The necessity for constant expenditures for improvements to maintain and enlarge the present transportation service of the carriers is felt by all lines. The roads will be called upon to give greater service than at any time in the past. Such development means a constant source of demand for steel. The burden of providing adequate instruments for future needs falls also upon many industries allied with the railroads.

1928 Predestined to Top 1927

THREE is distinctive as a numeral. In the science of numbers it is one of the few cursive forms adapted from primitive symbols. In historical association, especially biblical, it is almost as significant as seven. And now in iron and steel it appears descriptive of the rhythm of production.

It is striking how frequently the production of both pig iron and steel ingots has moved upwardward in cadences of three. Begin with 1921, as in the following table, and observe how output advanced to 1922 and then to 1923, only to fall back in 1924 to inaugurate a new cycle culminating in 1926:

	Pig Iron	Steel Ingots
1921	16,506,564	19,224,084
1922	26,850,844	34,568,418
1923	40,025,850	43,485,665
1924	31,076,572	36,811,157
1925	36,370,404	44,140,738
1926	39,100,941	46,936,205
1927	36,289,112	43,040,916

A reasonable deduction is that 1927 saw the dawn of a new upswing and that 1928 is foreordained to show increases in both products. It may be noteworthy, too, that each cycle has opened on a slightly higher level than the preceding one, and in ingots successive highs have been registered. On this theory 1929 will break the 1926 record of ingots.

Nor is this a postwar development. Scan pig iron as far back as 1855 and ingots to 1881—the limit of antiquity in each case—and this triplicity is most marked. In both products 1908-9-10, 1911-12-13 and 1914-15-16 group themselves and, excepting the war period and its immediately subsequent adjustment, it may be said that these three-year upswings have measured production for twenty years.

The history of pig iron production reveals 16 such cycles in 72 years, and steel ingots ten in 46 years. Taking pig iron because of its longevity, the three-part tempo was manifest in 1858-59-60, 1862-3-4, 1865-6-7, 1870-1-2, 1876-7-8, 1879-80-81, 1884-5-6, 1887-8-9, 1896-7-8, 1899-1900-01, 1905-6-7, 1908-9-10, 1911-12-13, 1914-15-16, 1921-22-23 and 1924-25-26. Three would certainly seem the patron saint of production.

Because an interstate commerce commissioner voted against certain southern states in a recent coal rate case, senators from these states have blocked his reappointment. This is putting the railroads into politics with a vengeance.

The Readers' Round Table

Is European Commercial History Repeating Itself in United States?

To the Editor:

YOUR journal and the writer of "Beating Down the Price," which appeared in the Jan. 19 issue, are to be congratulated upon the concise presentation of an unfair practice which, in conjunction with reciprocal buying, has almost overnight brought the engineering-contracting organizations face to face with what bids fair to be the most difficult problem of their development, past and future.

It is, after all, not correct to say "overnight" because for some years there have been buyers, or individuals of buying organizations, who have resorted to such practice, with or without the tacit approval and knowledge of responsible officers. It is also fair to say that some engineering-contracting organizations themselves are quite as responsible for the practice, for they do not hesitate to revise their specifications and prices to meet designs, layouts and equipment abstracted by the buyer from a competitor's report and proposal, rather than stand upon their own original set-up.

The tendency, however, seems to have finally and suddenly come into a more universal acceptance within the past three years, and to have appeared in the iron and steel industry. Competitive conditions, I suppose, have forced it, but certainly some part of the practice has been invited by engineering-contracting organizations themselves. Once such a bad habit is set up, it is going to be difficult to eradicate it, I believe. We see both sides of the matter here, being both buyers and sellers. And not only here, but abroad.

I think there is little question but that we are apparently approaching the commercial conditions that obtain on the continent. At least, on our eastern seaboard we are going through the same economic development in exhaustion of native raw materials and utilization of foreign raw materials as has occurred in England and the Ruhr. The competitive situation in regard to semifinished and finished products capacity relative to domestic demand is developing into the same unbalanced ratio that one finds abroad. The same economic pressure seems to develop, resulting in the present tendency to pass savings and economies on products to the consumer.

The reciprocal buying and "brain picking" tendencies we see assuming commercial practice here have existed abroad for a longer time than here, and the control of extremes in this direction is therefore more highly developed, although the practice itself is of wider resort and acceptance. And the situation abroad is met by rather tremendous combinations or understandings of not only producing, selling and buying organizations, but of engineering-contracting organizations, and since values for articles and services are low, close to a living margin, they have to be controlled.

Recent consolidations here may be a significant straw in the light of such things abroad and unmistakable tendencies here.

F. H. WILLCOX, *Vice Pesident, Freyn Engineering Co.*

Chicago, Feb. 27, 1928.

Beware Attack on Antitrust Laws

To the Editor:

MANY years ago the Supreme Court of the United States declared, in the Danbury Hatters' case, that the purpose of the antitrust laws was "to protect the liberty of the trader." Since then the American Federation of Labor and its affiliated unions have continuously and in numerous ways sought to prevent application of these laws to labor disputes. The labor sections of the Clayton Act, which were hailed as labor's Magna Charta, failed to realize organized labor's hopes in this respect and organized labor has returned with renewed vigor to an attack upon the antitrust statutes.

A subtle and dangerous factor in the present campaign is an appeal to the uninformed business man to join with the unions in an attack on the antitrust laws, upon the ground that the laws retard enterprise and defeat the legitimate aims of business growth. The danger is that some may overlook the fact that normal business growth has not been defeated by the antitrust statutes and fail to recognize that the most persistent dampener to business development has been the closed shop with its illegal strikes and interstate trade boycotts from which labor is only restrained by these same antitrust laws.

The antitrust laws do not forbid business growth nor do they forbid intelligent management of enterprise. Businesses merge or consolidate or grow large by the mere survival of the fittest. Competitors may exchange information, and are even assisted by the government in securing information as to the conditions of supply and demand and the proper costs of operation. The advantages of co-operation which stabilize or extend interstate trade are not forbidden. Only such combinations as do restrain, or are intended to restrain, interstate trade are forbidden.

PAUL T. NORTON, *President, National Metal Trades association.*

Columbus, O., Feb. 21, 1928.

IRON TRADE REVIEW

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E. L. SHANER, Editor. *J. D. PEASE, Advertising Director.* *F. F. LIGHT, Circulation Manager.*

Modern Welding Methods and Uses at Ford Motor Co.'s Plant. See Next Week's Issue.

DESPITE belief that some of Henry Ford's ideas of manufacturing are adapted only to large scale production, the fact remains many Ford innovations have been adopted in other industries. The assembly line now is used by makers of stoves, refrigerators, washing machines and even steam shovels. Industry has learned to look to Ford for new ideas. Realizing this, IRON TRADE REVIEW has obtained the first authentic details of certain operations on the new Ford car. Watch for the first article in next week's issue.

The Readers' Page

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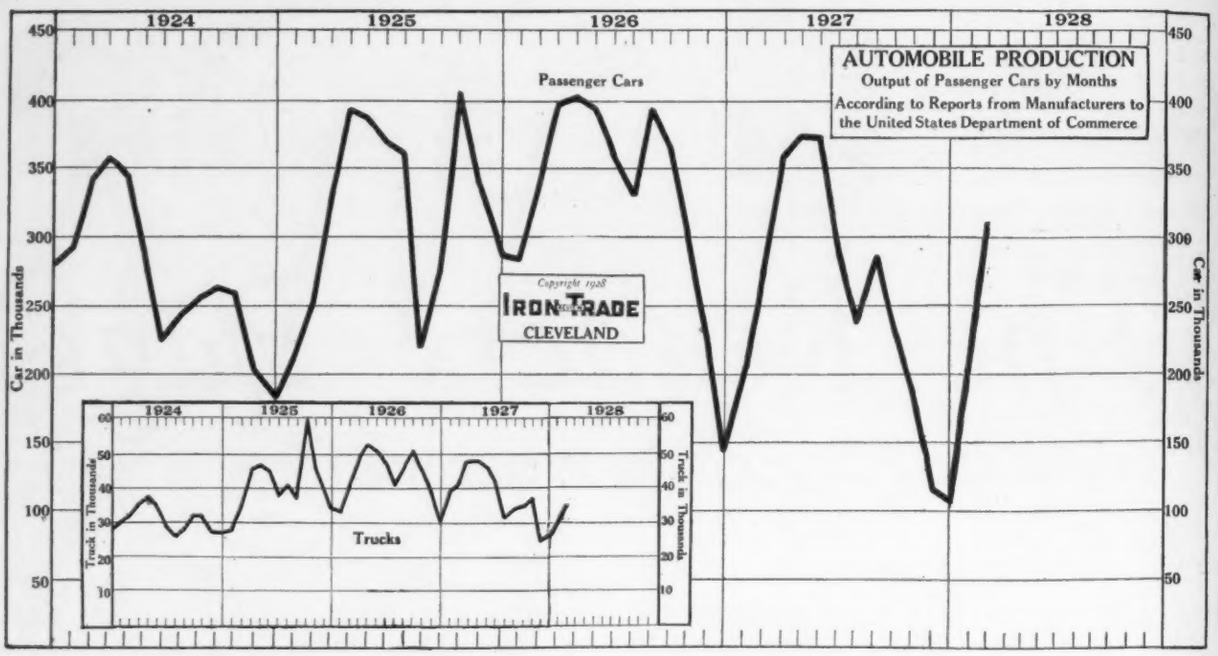
The Business Trend



February Brings New Records

By JOHN W. HILL, Financial Editor

STATISTICAL records of the first two months of 1928 reveal marked and unmistakable recovery from the low area of late last year. January pointed the trend and February, for at least two great basic industries, brought new high records of activity for the second month of the year. The two industries were steel and building construction.

NEVER in any previous February did the daily average production of steel ingots climb so high as the 160,591-ton mark reached last month. This figure was over 5 per cent greater than that of January and 1.8 per cent over February, 1927. It was within striking distance of the previous peak for all time of 166,633 tons recorded for March 1927.

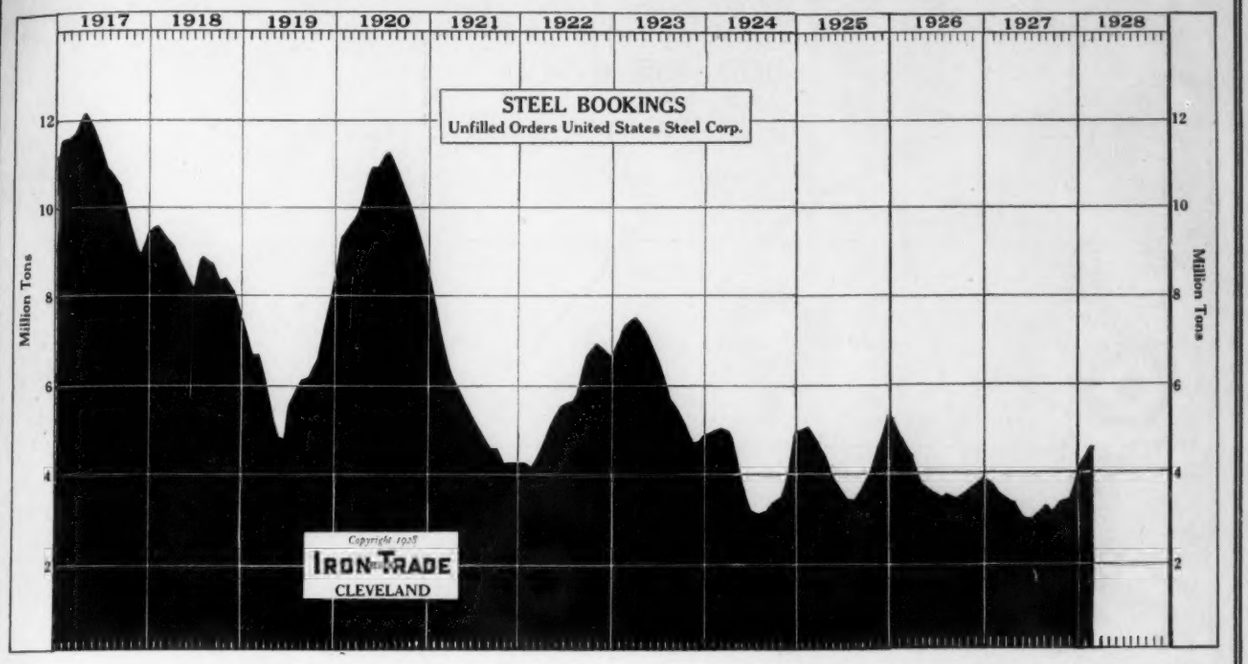
BUILDING construction shows a similar record. Building contract awards in 37 states reported by the F. W. Dodge Corp. totaled 68,800,000 square feet in February. This was an increase of 8 per cent over the total of 63,700,000 square feet in January and one of 25 per cent over the 54,800,000 square feet in February, 1927. In no other February has contract awards ever reached so great a total. Great utility projects have shown largest gains.

THE automobile industry is not far behind in its showing for last month. The production of automobiles in February by the members of the Automobile Chamber of Commerce totaled 325,778 cars and trucks. Ford is not a member of the association and the figure does not include his output. In January Ford's production was about 12,500 cars and trucks and in February it probably did not greatly exceed 20,000.

IT IS noteworthy that the February output for makers, exclusive of Ford, was greater than the February, 1927 production of 323,418 units, with Ford included. One year ago in February members of the Automobile Chamber of Commerce made 251,418 cars, so that the output for those companies this year shows a gain of nearly 30 per cent in a year.

IMPROVEMENT also is shown in the record of railroad car buying in February. The final compilation shows a total of 9962 cars against 3900 cars in January and 5960 cars in February, 1927. From the statistical evidence, therefore, the conclusion is inescapable that business betterment is underway. While many irregularities exist now, as always, there are no present signs of abatement of current activities.

The Business Trend

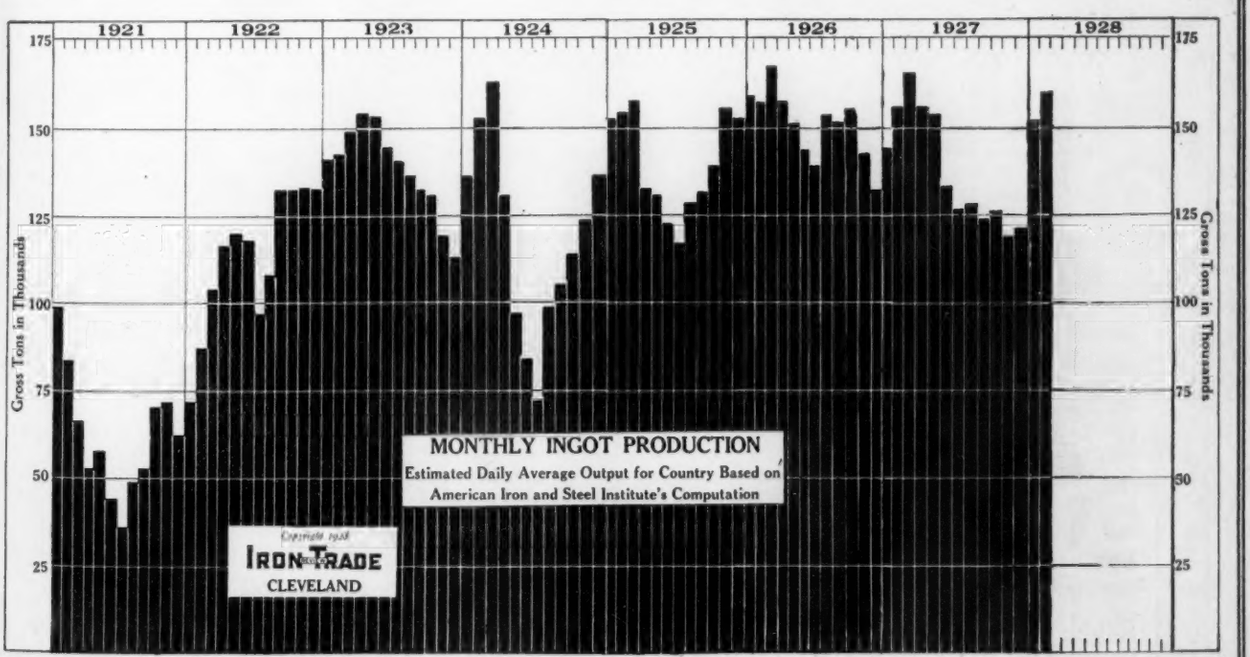


Steel Bookings

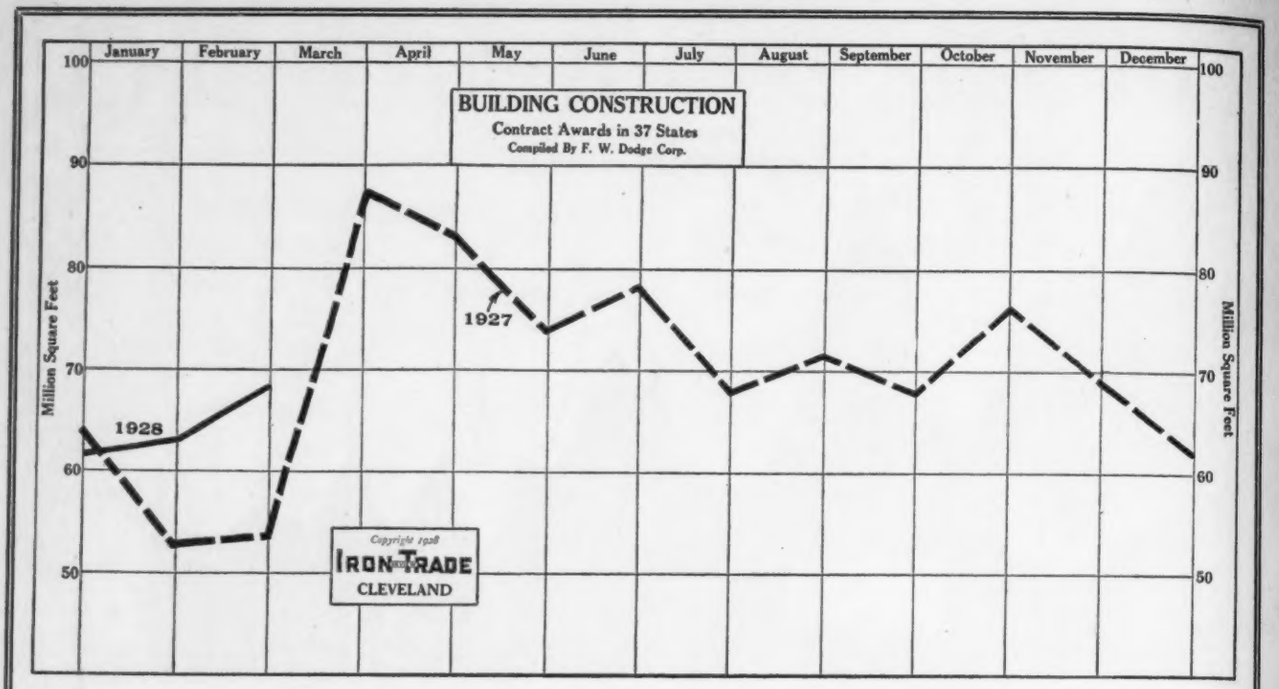
NOTWITHSTANDING the record-breaking February output of steel, there was a further gain in unfilled orders of the United States Steel Corp. during the month. The increase in bookings during February was 122,242 tons making the aggregate at the close of the month 4,398,000 tons. The increase in bookings for the month compared with the gain of 303,000 in January and with a loss of 203,000 tons in February, 1927. One year ago the total bookings stood at 3,597,119 tons.

Steel Ingot Output

STEEL ingot production last month set a new high record for February. Daily average output was 160,591 tons compared with 152,304 tons in January and 157,557 tons in February, 1927. The rate of operation was second only to the peak month of March, 1927 with the daily rate of production of 166,633 tons. The gain over January was 5.4 per cent while there was an increase of 1.9 per cent over February one year ago. Ingot production for the first two months of the year was 3.5 per cent over one year ago.



The Business Trend

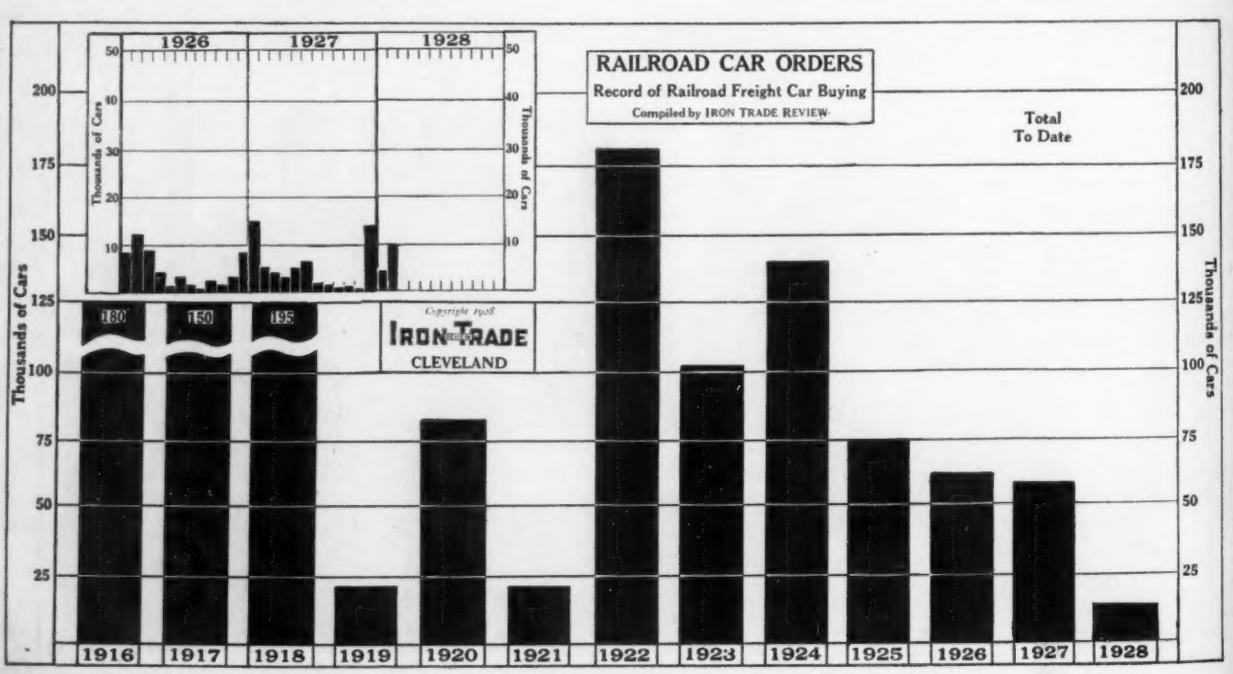


Building Construction

A NEW February high mark was reported last month for building construction. The grand total of contracts awarded in 37 states, as reported by the F. W. Dodge Corp., was 68,847,400 square feet. This compares with 63,716,900 square feet in January and with 54,844,100 square feet in February, 1927. The gain over the preceding month was 8 per cent and the gain over one year ago was 25 per cent. During the month increases were reported both for residential construction and for industrial building.

Car Orders

ACCORDING to the revised figures, domestic freight car awards for February involved 9962 cars. This compared with 3900 cars ordered in January and with 5960 cars ordered in February, 1927. For the first two months of the year car awards are below those of one year ago. During January and February, 1927 the railroads purchased 20,670 cars, while this year purchases for those months have totaled ouly 13,862 cars. While car buying has not been up to 1927, rail purchases are larger.



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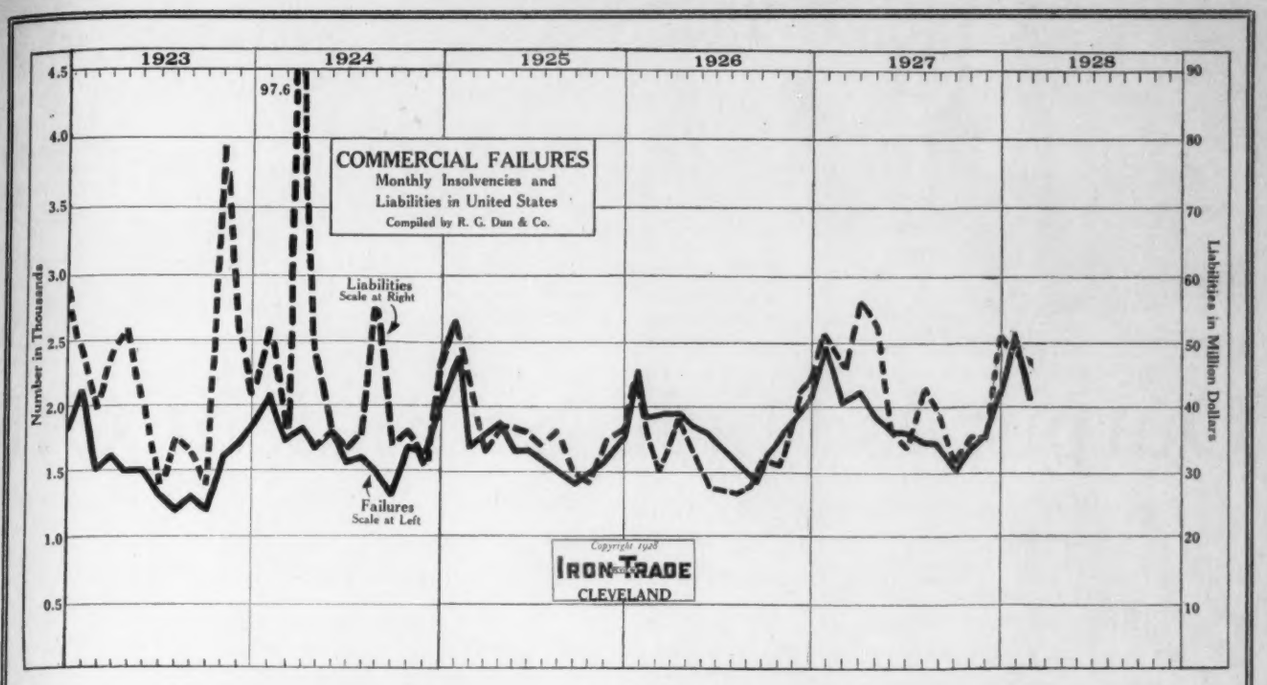
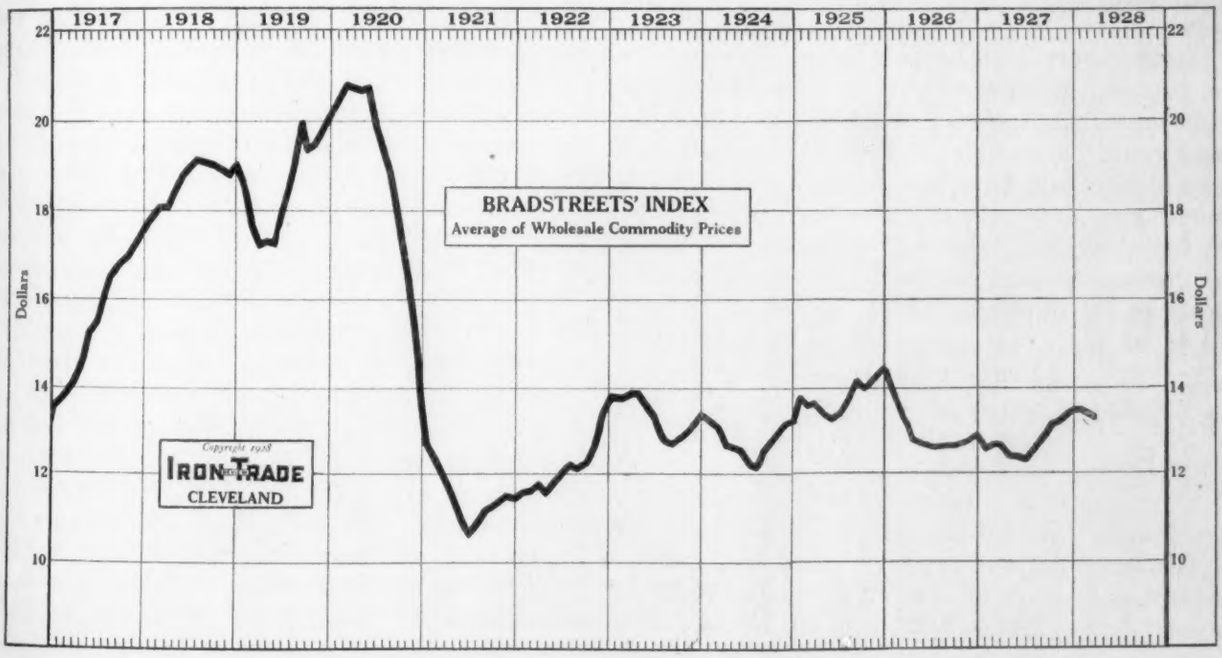


Commercial Failures

THE number of commercial failures in the United States decreased during February. The total was 2176 compared with 2643 in January, a decline of 17 per cent. This falling off in the number of defaults was a seasonal development following the peak of failures in the first month of the year. Liabilities involved in the failures in February amounted to $45,070,000 compared with $47,634,000 in January and $46,940,716 in February, 1927. The average liabilities for each failure was $20,120 in February.

Bradstreet's Prices

SHARP recessions in some miscellaneous products have resulted in a further downswing of Bradstreet's monthly price index. Special weakness has appeared in rubber and in pork products. Nonferrous metals and hides also have been below their recent levels. The index on March 1 stood at 13.34, a decrease of 1.3 per cent from the preceding month but a gain of 6.3 per cent over March 1, 1927. The index now is yielding some of the gain made during the closing months of 1927.



Output Is High; Sentiment Off

Ingot Rate Holds at Practically Record Gait but Specifications Require More Effort —Alloy Steel Prices on New Basis—Pig Iron Irregular at Pittsburgh— February Ingots Set New High—Closing on Sheets

FINISHED steel production is undiminished this week at a rate approximating the record of last March but market opinion is tinctured by the general business situation and carries a shade less of conviction. Symptoms characteristic of the peak of an upswing are more evident and producers, regarding a first quarter better than a year ago as an accomplishment, are more intent concerning the second quarter.

To develop specifications for maintaining mill rates on some products has required more persistence this week. Higher prices on some light steel lines, on which users of price-making proportions are closing this week for the second quarter, are wavering as they approach the test. The readiness with which some producers halved the recent $2 advance in heavy steel and solicited second quarter contracts becomes more impressive in retrospect.

On the other hand, evidences of strength are not lacking. If ingot output can forge ahead only 5 per cent in the last half of March a new monthly ingot record is possible. Automotive interests are taking more pig iron and finished steel than a month ago, and a good sixty days is ahead of the industry. Rail mills will continue at top speed another thirty days at least. The building outlook has not dimmed. These conditions promise continued high production but no increase.

Prices Still in Flux

Price adjustments, largely the sequel to the rise in heavy steel the past ninety days, continue numerous. Alloy steel makers have adopted a new price schedule, based upon differentials over a 2.65c, Pittsburgh or Chicago base, and are completing new extras; reductions in price in the new schedule about offset advances. Stove bolts are up 10 per cent. Cold finished bar mills, after enjoying a spot market at 2.35c, Cleveland or Chicago, have contracted for second quarter at 2.25c, which governed for the first quarter.

Chicago mills, beneficiary of heavy automotive, railroad and implement specifications, hold at a 93 per cent ingot rate. Pittsburgh mills are at 75 to 80 per cent. The Mahoning valley at 85 per cent is at the highest ingot rate in a year.

Pig Iron Is Less Steady

The emphasis in pig iron continues on shipments, which from some lake furnaces are extremely heavy, rather than on bookings but the price situation is somewhat irregular. Steelworks stacks in the immediate Pittsburgh district have done less than the equivalent of $17, Valley, on basic and $17.50 on bessemer. The lake furnaces are seeking 50 cents more, or $17.50, base, furnace, in southern Ohio. Shipments in the Chicago-Milwaukee district, where 65 per cent of second quarter tonnage has been booked, are running 100,000 tons a month. Iron to be barged east from Buffalo continues a factor in the eastern markets. The eastern Pennsylvania market is featured by a sale of 10,000 tons of Virginia pipe iron.

Little Steel to Hold Over

Specifications against bar, plate and shape contracts in all districts reflect the approach of the quarter's end and apparently little tonnage at lower prices than now prevailing will remain untaken. Steel bar deliveries at Chicago are deferred four to six weeks. Oil country tank work placed at Chicago in the past week calls for 12,000 tons of plates. Carbuilders are active in specifying but not in fresh buying. The late February advances on heavy steel are more generally quoted on spot business but all contracting at lower levels has not ceased.

A purchase of autobody sheets by the Ford Motor Co. at 4.15c, Pittsburgh, encourages sheet-

The Market Section

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Mar. 14, 1928	Feb. 1928	Dec. 1927	Mar. 1927
PIG IRON				
Bessemer, del. Pittsburgh	$19.26	19.26	19.36	21.16
Basic, valley	17.00	17.00	17.00	18.50
Basic, eastern, del. eastern Pa.	19.50	19.50	19.25	21.00
*No. 2 foundry, del. Pittsburgh	19.01	19.01	19.01	20.16
No. 2 foundry, Chicago	18.50	18.50	18.50	20.00
*Southern No. 2 Birmingham	16.00	16.00	16.00	18.00
*Southern Ohio, No. 2 Ironton	19.00	19.00	19.00	20.00
**No. 2X, Virginia furnace	20.50	20.50	21.00	22.00
**No. 2X, eastern, del. Phila.	21.26	20.91	20.26	22.66
Malleable, valley	17.25	17.25	17.35	18.40
Malleable, Chicago	18.50	18.50	18.50	20.00
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.51	18.51	18.56	19.66
Ferromanganese, del. Pittsburgh	104.79	104.79	104.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon. 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.60	2.65	2.60	3.30
Connellsville, foundry, ovens	3.75	3.75	3.60	4.15
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	34.00	34.00	35.00
Sheet bars, open-hearth, Pittsburgh	34.00	34.00	34.00	34.00
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	33.60
Wire rods, Pittsburgh	44.00	43.50	40.00	43.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.85	1.80	1.90
Steel bars, Chicago	1.95	1.95	1.90	2.00
Steel bars, Philadelphia	2.17	2.17	2.12	2.22
Iron bars, Philadelphia	2.12	2.12	2.07	2.17
Iron bars, Chicago	2.00	1.95	1.90	2.00
Shapes, Pittsburgh	1.90	1.85	1.80	1.90
Shapes, Philadelphia	2.07	2.08	2.08	2.12
Shapes, Chicago	1.95	1.95	1.90	2.00
Tank plates, Pittsburgh	1.90	1.85	1.80	1.90
Tank plates, Philadelphia	2.10	2.10	2.05	2.22
Tank plates, Chicago	1.95	1.95	1.90	2.00
Sheets, black, No. 24, Pittsburgh	2.90	2.85	2.75	2.90
Sheets, blue anl., No. 10 Pittsburgh	2.10	2.10	2.10	2.20
Sheets, gal., No. 24, Pittsburgh	3.75	3.65	3.60	3.70
Sheets, black, No. 24, Chicago	3.05	3.05	2.95	3.00
Sheets, blue anl., No. 10, Chicago	2.25	2.25	2.25	2.35
Sheets, galvanized, No. 24, Chicago	3.90	3.90	3.80	3.90
Plain wire, Pittsburgh	2.50	2.45	2.35	2.40
Wire nails, Pittsburgh	2.65	2.60	2.45	2.55
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	14.75	15.05	14.95	16.40
Heavy melting steel, eastern Pa.	14.00	14.00	14.00	14.75
Heavy melting steel, Chicago	12.75	12.55	11.95	13.05
No. 1 wrought, eastern Pa.	15.25	15.25	15.60	16.75
No. 1 wrought, Chicago	12.60	12.40	11.40	13.50
Rails for rolling, Chicago	14.75	15.00	14.10	15.50

Composite Market Average

The Fourteen Leading Iron and Steel Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Sharpes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (March 14, 1928)	**$35.91**
Last week (March 7, 1928)	**35.91**
One month ago (February, 1928)	**35.62**
Three months ago (December, 1927)	**35.09**
One year ago (March, 1927)	**36.83**
Ten years ago (March, 1918)	**56.71**
Fifteen years ago (March, 1913)	**27.93**

makers to believe that the $3 advance in this grade will hold. Blue annealed at the new asking price of 2.10c, Pittsburgh, and black at 2.90c are less strong. Black sheets have been shaded $3 per ton in the East and in some small sales in the Middle West $1 and $2. This week is expected to afford a real test when large automotive users cover.

Revised statistics on freight car orders for February give the total as 9962, bringing placements in the first two months of 1928 at 13,862, against 20,670 one year ago.

The fact that unfilled tonnage of the United States Steel Corp. as of Feb. 29 stood at 4,398,198 tons, compared with only 3,597,119 tons a year ago, cannot appear other than auspicious in the light of heavy shipments, but the increase of 122,242 tons over Jan. 31 is attributable to the second quarter tonnage driven in by the late February rise in heavy steel.

February set a new high in ingot production for that month when it attained a daily average of 160,591 tons. This compares with 152,354 tons in January, 157,557 tons last February and the all-time record of 166,633 tons last March. The two-month ingot total for 1928 is 7,975,983 tons; a year ago it was 7,541,253 tons.

The IRON TRADE REVIEW index of fourteen leading iron and steel products is unchanged this week at $35.91 in the absence of major price changes. This compares with an average of $35.62 for February and $36.83 last March.

Late News Flashes

Chicago Holds at 93 Per Cent Rate

Chicago, March 13.—Steel mill operations in the Chicago district are holding to about 93 per cent. Twenty-nine of the 36 steelworks blast furnace stacks are active.

Valley Mill Rates Best in Year

Youngstown, O., March 13.—Mills are operating this week at the best rates in the past year, 11 finishing mills showing a gain, even including merchant pipe. Out of 53 independent open hearths 47 are active; with 114 independent sheet units active out of 127; and 13 pipe mills active out of 18; tin plate at 80 per cent and strip mills at capacity.

Pittsburgh Averages 75 to 80 Per Cent

Pittsburgh, March 13.—Steelmaking in this district continues at 75 to 80 per cent. Steelworks at Vandergrift, Pa., Steubenville, O., Weirton and Wheeling, W. Va., are operating practically full. Carnegie Steel Co. is at 80 to 85 per cent, Jones & Laughlin Steel Corp. at 80 and Bethlehem Steel Corp. at 75 to 80. Republic Iron & Steel Co. has 13 out of 14 open hearth furnaces on. At the Butler, Pa., plant of American Rolling Mill Co. 6 out of 10 open hearths are active. Pittsburgh Steel Co. has 10, instead of 9, out of 12 open hearths going.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	38.30
Chicago	34.00
Forging, Pittsburgh	39.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh, Youngstown	$34.00
Cleveland	33.00
Chicago	35.00

SLABS

Pitts., Young., and Cleve.	$33.00

WIRE RODS

Pittsburgh, Cleveland	$44.00
Chicago	45.00

SKELP

All grades, Pittsburgh	1.85c to 1.90c

Standard Structural Shapes

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.07c to 2.18c
New York, del	2.14c to 2.19c
Boston, del.	2.265c to 2.415c
Chicago	1.95c to 2.00c
Cleveland, del.	2.04c to 2.09c
Buffalo	2.00c
Bethlehem	2.05c
Birmingham	2.05c
Pacific coast, c.i.f.	2.35c

Steel Plates

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.10c
New York, del	2.175c
Boston, del.	2.265c to 2.415c
Chicago	1.95c to 2.00c
Cleveland	2.04c to 2.09c
Buffalo	2.00c
Coatesville, Sparrows Point	2.05c
Birmingham	2.05c
Pacific coast, c.i.f.	2.25c to 2.30c

Iron and Steel Bars

Pittsburgh, soft steel	1.85c to 1.90c
Pittsburgh, cold finishing	2.00c to 2.05c
Pittsburgh, forging quality	2.10c to 2.15c
Philadelphia, soft steel	2.17c
New York, soft steel	2.19c
Boston, del.	2.265c to 2.415c
Chicago, soft steel	1.95c to 2.00c
Cleveland, soft steel, mill	1.90c
Cleveland, soft steel, del.	1.92½c and 2.09c
Birmingham, soft steel	2.05c
Buffalo	2.00c
San Francisco, soft steel	2.35c
Pittsburgh, refined iron	2.75c to 4.25c
Chicago, reinforcing billet	2.30c to 2.75c
Pitts., reinforcing billet	1.90c
Chicago, reinforc. rail steel	1.85c to 1.95c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.85c
Rail steel, mill	1.75c
Philadelphia, common iron	2.12c to 2.22c
New York, common iron	2.14c to 2.24c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hot strip, under 3-inch, Pitts.	2.20c to 2.40c
Hot strip, 3 to 6-inch, Pitts.	2.10c to 2.20c
Hot strip, 6 to 12-inch, Pitts.	1.90c to 2.00c
Hot rolled strip, 12 to 24-inch, 16 gage and heavier, coils or cut lengths, 1.90c plate basis, or 2.10c blue annealed basis, plate or sheet extras.	
Hot strip, under 3-in., Chi.	2.30c to 2.50c
Hot strip, 3 to 6-in., Chi.	2.20c to 2.30c
Hot strip, 6 to 12-in., Chi.	2.00c to 2.10c
Hot strip, 12 to 24-in., Chi.	1.95c plate base
Cold rolled strip, hard coils, 1½ inches and wider by 0.100-inch and heavier base, Pitts., Cleve., (under 3 tons)	3.15c
Worcester, Mass	3.40c

Cold Finished Steel

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Shafting (turned, polished) Pitts.	2.20c
Shafting (turned, ground) mill (Depending on size, 1 7/16 to 7-inch)	2.45c to 2.90c
Cold finished steel bars, Cleve.	2.25c

Chain, Piling, Cut Nails

Cut nails, c.l., f.o.b. mills	2.80c
Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.35c

Alloy Steel

Hot Rolled

F.o.b. Pittsburgh or Cleveland
Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net price 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.00	3.65
3400	3.20	5.85
3300	3.80	6.45
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo., 1.25-1.75 Ni.	*1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250	0.25	2.90

Hot rolled billets 4 x 4-in. and over take same price gross ton as same specification bars net ton. Sizes from 4 x 4-in. down to 2½ x 2½-in. same basis plus $5 a ton extra. Smaller billets take bar price on net ton basis. Slabs with section area 16 in. or over take billet price, from 12 to 16 in. $5 extra, under 12-in. bar price.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh base	2.80c to 2.90c
No. 24, Philadelphia, delivered	3.07c to 3.22c
No. 24, Gary, Indiana Harbor	3.00c
No. 24, Chicago, delivered	3.05c
No. 24, Birmingham, base	3.05c

TIN MILL, BLACK

No. 28, Pittsburgh	2.90c to 3.00c
No. 28, Gary, base	3.00c to 3.10c

GALVANIZED

No. 24, Pittsburgh base	3.75c
No. 24, Philadelphia, delivered	4.07c
No. 24, Gary, Indiana Harbor	3.85c
No. 24, Chicago, delivered	3.90c
No. 24, Birmingham, base	3.90c

BLUE ANNEALED

No. 10, Pittsburgh, base*	2.00c to 2.10c
No. 10, Philadelphia, delivered	2.42c
No. 10, Gary, Indiana Harbor	2.20c to 2.30c
No. 10, Chicago, delivered	2.25c to 2.35c
No. 10, Birmingham base	2.30c

*Plus 10 cents for 40 inches or wider.

AUTOMOBILE

No. 20, Pittsburgh base	4.15c

Iron

No. 10, Pitts., blue ann., c.l.,	2.80c
No. 24, Pitts., box annealed, 1-pass cold rolled, carload	3.75c
No. 24, Pitts., gal., c.l.	4.85c

Tin and Terne Plates

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.25

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.10c

*Prices subject to quantity differentials.

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra f.o.b. Cleveland and Pittsburgh base.

Bright plain wire, No. 9 gage	2.50c
Annealed fence wire	2.65c
Galvanized wire, No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
	Per 100 lbs.
Wire nails	$2.65
Galvanized nails	4.65
Polished staples	3.10
Galvanized staples	3.35
Coated nails, 100 lb. kegs, subject to Sept. 1, 1926, extra, base	2.65
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relay, rails, Pitts. 60 to 90 lb.	27.00 to 30.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.75c to 2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., stand.	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	2.15c

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 and 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent.

Boiler Tubes

Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	42½
Charcoal iron, 3¼ to 4½-inch	9
Seamless hot rolled 3¼ to 3½-inch	46

Further discounts of five to seven 5 per cents for carloads on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal from one 10 per cent to two 10 and one 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Six-inch and over, Birming'm	$28.00 to 30.00
Four-inch, Birmingham	32.00 to 34.00
Four-inch, Chicago	41.20 to 42.20
Six-inch to 24-inch, Chicago	37.20 to 38.20
Four-inch, New York	40.25 to 41.60
Six-inch and over, New York	36.75 to 37.75
Standard fittings, Bir. base	$100.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

Bolts and Nuts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅜x6 and smaller take 10 per cent lower list.

Eagle list	70 off

MACHINE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅜x6 and smaller take 10 per cent lower list.

Lag screws	70 off
Plow bolts, Nos. 1-2-3-7 heads	70 off
Tap bolts	70 off
Blank bolts	70 off
Stud bolts without nuts	70 off

Stove bolts, 75 off in packages; extra 2½ for bulk.

Tire bolts	60-5 off

NUTS

Semifinished	70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1-in. diam. and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset, 1-in. diam. and smaller	80-10-10 off

Rivets

Struct., c.l., Pitts.-Cleve.	2.75c to 2.90c
Structural rivets, c.l, Chicago	3.00c
**Rivets, 7/16-inch and smaller, Pitts., Chi., Cleveland	70 and 10 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought, c.l., Pitts. dist.	$6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock washers (dealers)	85-5 off
Lock washers (consumers)	85 off

Pig Iron

Shipments Heavy, with Sales Tapering Off —Prices Continue to Show Easy Tendency in Some Districts

WHILE sales of pig iron are less active, following recent heavy buying, shipments are being made at a daily average rate that is better than in February or January. Makers do not seem to be able to get up their prices as much as they wish, but with a continuance of heavy demand they see much better prospects. It is intimated that in recent orders placed by the Westinghouse Electric & Mfg. Co. for Trafford City, Pa., less than $17.25, base, valley, was done. Shipments from valley furnaces at the same time are said to indicate a normal rate of consumption. Basic and bessemer iron are reported to have been sold below the valley equivalents of $17 and $17.50, respectively, from steelworks in the Pittsburgh district.

PITTSBURGH, March 13.—Pig iron inquiries still lag, although shipments on contracts are heavy, indicating almost normal consumption. While a number of customers are protected for first half, some large buyers are expected to enter the market soon for second quarter. The only buying noted recently is that by the Westinghouse Electric & Mfg. Co. for Trafford City, Pa. An order for 1200 to 1500 tons was divided among several sellers. One Pennsylvania steelworks interest shared in the order to the extent of several hundred tons of No. 2 and No. 2 X. One merchant furnace is understood to have been given an order for 500 tons, made up of three grades. While it is intimated a price below $17.25, base, valley, was obtained, all sellers claim $17.25 was their minimum. Basic and bessemer are featureless. The latter continues to sell in single carloads at $17.50, valley.

Boston, March 13.—Pig iron sales in this market totaled about 5000 tons in the past week. Buffalo and Eastern furnaces took the bulk of the tonnage. Limited sales of Indian iron are reported at $21.75 to $22, on dock, duty paid. One Buffalo furnace continues to quote $16.50, base, furnace. The Mystic Iron Works, Everett, Mass., continues to meet the Buffalo figures. A slight improvement is noted in the New England melt.

New York, March 13.—Pig iron orders in the past week are estimated at 4000 to 5000 tons. The principal inquiry before the trade is that of Abendroth Bros., Port Chester, N. Y., for 2000 tons. This is expected to be closed within the coming week. Prices show an easier tendency. Buffalo foundry iron as a rule is $16.50 to $17, base, furnace, but as low as $16, base, Buffalo, apparently has been done. The market on eastern Pennsylvania foundry iron as a rule is $20, but in some instances lower has been done.

A Flemington, N. J., foundry is inquiring for 900 tons of foundry iron.

Buffalo, March 13.—Less than 3000 tons of pig iron inquiry is pending in this district. Most consumers are well covered for second quarter. The Buffalo district base price is $17 for foundry iron. Twelve of 21 district furnaces are in blast.

Youngstown, O., March 13.—Producers of pig iron in this valley, who heretofore have been important supply factors in the Pittsburgh trade, have confessed themselves out of it for the present due to keen competition, especially in steelmaking grades. Due to a struggle between steelmakers with surplus pig iron, prices of basic and bessemer have been forced down far below equivalent to prevailing valley prices of $17 for basic and $17.50 for bessemer. Some of the keenness of this competition is laid to favoring freight rates to Pittsburgh buyers from nearby blast furnaces.

Pig Iron Prices

Per Gross ton

Bessemer, valley furnace	$17.50
Bessemer, del. Pittsburgh	19.26
Basic, valley furnace	17.00
Basic, del., Pittsburgh	18.13 to 18.76
Basic, Buffalo furnace	17.00
Basic, del., eastern Pa.	19.25 to 20.25
Malleable, valley furnace	17.25
Malleable, del. Pittsburgh	19.01
Malleable, del. Cleveland	18.50
Malleable, Chicago furnace	18.50
Malleable, Buffalo furnace	17.50
Malleable, del. eastern Pa.	20.00 to 21.00
No. 1 foundry, Chicago furnace	19.00
No. 1X, eastern del., Phila.	21.76
No. 1X. Buffalo furnace	18.50
No. 2 foundry, valley furnace	17.25
No. 2 foundry, del., Pittsburgh	19.01
No. 2 fdy., Everett, Mass., fur.	19.00 to 21.00
No. 2 foundry, Buffalo furnace	17.00
No. 2 foundry, Chicago furnace	18.50
No. 2 foundry, Granite City	19.50
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.50
No. 2 foundry, del. Phila.	20.76
No. 2 Virginia furnace	20.00 to 20.50
No. 2 foundry, N. J., tidewater	19.78 to 21.76
No. 2 foundry, east N. Y. fur.	18.00
No. 2 Alabama, Birmingham	16.00
No. 2 Alabama, del. Cincinnati	19.69
No. 2 Tenn., Birmingham base	16.00
No. 2 Tenn., del., Cincinnati	19.69
No. 2 Alabama, del. Philadelphia	22.01
No. 2 Alabama, del. Chicago	22.01
No. 2 Ala., del. Chicago, river-rail	20.18
No. 2 Alabama, del. Cleveland	22.01
No. 2 Alabama, del. St. Louis	20.42
No. 2X, east. N. J., tidewater	20.28 to 21.26
No. 2X, eastern, del. Phila.	21.26
No. 2X, foundry, Buffalo furnace	17.50
No. 2X, eastern, del. Boston	23.15 to 23.65
No. 2X, Virginia furnace	20.50 to 21.00
No. 2X, Virginia, del. Phila.	25.04 to 25.54
No. 2X, Virginia, del. Jersey City	25.37 to 25.87
Gray forge, val., del., Pittsburgh	18.51
Low phos., standard, valley	27.00
Low phos. standard, Phila.	24.76 to 27.29
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron, Jackson county (Ohio) furnace, in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

Cleveland, March 13.—The most important feature of the pig iron market is the steady increase in shipments. The daily average has continued to expand since the first of the year, and the March rate is particularly gratifying to the large furnace interests here. One of the Cleveland companies is shipping more than it is making, and may put its fourth furnace in blast at an early date. Lake furnaces generally report a very encouraging pick-up in shipping orders in the past week. Current sales are running fairly uniform with those of the past several weeks, 28,000 tons having been booked in the past week, compared with 32.000 tons in the week preceding. Prices are steady, and slightly firmer in some districts. Some Lake furnace interests are trying to obtain $17.50, base, furnaces, in southern Ohio, or 50 cents more than the recent price. Cleveland furnaces continue to quote $18, base, furnace, for local delivery, while $17 is the general quotation outside.

Detroit, March 13.—Shipments of pig iron thus far in March to automotive foundries have been at a slightly heavier rate than in February, indicating good automobile output at least another thirty days. Foundries generally have no stocks and current shipments go into production. Users other than automotive are on a light basis. Shipments from the local furnaces continue to exceed the make. Second quarter buying has been relatively light, as first half contracts were generally made. Foundry and malleable are $18, Detroit furnace.

Chicago, March 13.—Most of the larger buyers of northern pig iron have closed for their second quarter requirements. Buying continues active in small lots. The aggregate tonnage sold in the past week was less than the average of the past three months despite numerous individual orders. Probably 65 per cent of the second quarter iron has been placed. Shipments in the Chicago-Milwaukee territory continue close to 100,000 tons monthly. About 300 tons of a 1000-ton order of foundry iron for a melter just west of Chicago was placed with a southern furnace to be shipped by

(*Concluded on Page* 715)

Coke

Market Is Quieter, Though Motorcar Builders Are Taking Larger Tonnages

NEW demand for by-product foundry coke continues to improve in the automotive field, but in other lines has diminished, largely because users are covered. Prices in eastern territory are easier, and at Buffalo a reduction of 50 cents to $8.50, ovens, is noted. Few blast furnaces are in the market for beehive fuel.

Pittsburgh, March 13.—High-grade, low sulphur beehive furnace coke continues to sell in small lots for non-metallurgical purposes at $2.60 to $2.75. Some machine drawn coke, selling sometimes at $2.50, is made from slack coal and is not suitable for blast furnaces. Furnace interests are not buying extra supplies. One or two are about to renew arrangements for second quarter with present sources. Shenango Furnace Co. and Struthers Furnace Co. may enter the market soon. Producers having a high wage scale continue to quote $3, but buyers want contract prices similar to the spot market level. Heating coke demand is negligible. This grade is available at $2.50 and less. Foundry coke shipments are relatively high. Prompt market activity is confined to cheaper grades, around $3.75. Higher price brands are moving on contracts.

Production of coke in the Connellsville region in the week ended March 3 was 64,790 tons, compared with 61,280 tons the preceding week, according to the *Connellsville Courier*.

Boston, March 13.—The only development in coke in the past week was a better demand from several foundries. Prices are steady.

Buffalo, March 13.—Foundry coke now is $8.50, ovens, a reduction of 50 cents. Demand has shown marked improvement over several weeks.

New York, March 13.—Demand for foundry coke has fallen off. Prices are easier. The level on spot beehive foundry coke, however, continues $3.75 to $4, Connellsville. By-product coke continues $8.30, New Jersey ovens, equivalent to $9 to $9.40, delivered, Newark. In New England the market for by-product foundry coke continues $11.50, delivered at most consuming points.

Cincinnati, March 13.—Foundry coke specifications from automobile manufacturers continue in good volume, and a wider market is developing with foundries making special castings for those manufacturers.

St. Louis, March 13.—Purchasing of coke has slowed down, as melters have covered requirements. Some inquiry for third quarter delivery is noted, and the prices quoted are virtually the same as for first quarter. Consumption so far this month is slightly higher than in February.

Birmingham, Ala., March 13.—Greater production of coke is noted, as the first battery of the addition to the by-product coke works of the Tennessee Coal, Iron & Railroad Co., at Fairfield has started. Quotations are firm.

Coke Prices

	Beehive Ovens Prices per Net Ton	
Connellsville furnace	$2.60 to	2.75
Connellsville foundry	3.75 to	4.25
New River foundry	7.00 to	8.00
New River furnace		6.00
Wise county foundry		5.00
Wise county furnace		4.50
Alabama foundry		5.00
By-Product Foundry		
Newark, N. J., del.	9.00 to	9.40
Chicago, ovens		9.00
New England, del.		11.50
St. Louis		9.75
Birmingham		5.00
Indianapolis, del.		9.75
Ashland, Ky.		7.50
Portsmouth, O.		7.50
Detroit, ovens		9.00
Buffalo, ovens		8.50

Ferroalloys

Specifications Increase — Spiegeleisen Demand Especially Large

Pittsburgh, March 13.—Ferroalloy specifications are larger. Shipments at $100 are heavier in ferromanganese, and correspondingly so in other alloys due to increased consumption. Nothing much is being covered for second quarter, only one or two buyers remaining outside the fold of those protected until July 1 by requirement contracts. Nothing is interfering with specifications on spiegeleisen contracts. Spot prices are unchanged at $32 on 19 to 21 per cent material, with shipments on contracts being billed at less. Other mills share in this general trend toward bettered conditions, and all prices are unchanged.

Chicago, March 13.—It is understood a few contracts still remain to be closed for 50 per cent ferrosilicon and chrome. Ferromanganese is quiet. The price remains $100, seaboard. Another lot of spiegeleisen has been closed at $31, eastern furnace, for 19 to 21 per cent. Carlot orders are held at $32.

"Metal and Fiber Flashlight Cases," is the title of simplified practice recommendation No. 68 just printed by the bureau of standards, Washington. Copies of this pamphlet can be secured for 5 cents each by addressing the superintendent of documents, government printing office, Washington.

Unfilled Tonnage Gains for Fifth Month

Unfilled bookings of the United States Steel Corp., aggregating as of Feb. 29, a total of 4,398,189 tons, showed an increase for the fifth consecutive month. The increase over January was 122,242 tons, or 2.8 per cent, and brought the total to the highest since Feb. 28, 1926. Following is a comparative statement:

Date	Total	Change, tonnage	Change, per cent	
Feb. 29, 1928	6,398,189	122,242	+ 2.8	+
Jan. 31, 1928	4,275,947	303,073	+ 7.62	+
Dec. 31, 1927	3,972,874	518,430	+ 15.	+
Nov. 30, 1927	3,454,444	113,404	+ 3.39	+
Oct. 31, 1927	3,341,040	192,921	+ 6.1	+
Sept. 30, 1927	3,148,113	47,924	— 1.49	—
Aug. 31, 1927	3,196,037	54,023	+ 1.7	+
July 31, 1927	3,142,014	88,768	+ 2.8	+
June 30, 1927	3,053,246	2,305	+ 0.075	+
May 31, 1927	3,050,941	405,191	—11.7	—
Apr. 30, 1927	3,456,132	97,008	— 2.72	—
Mar. 31, 1927	3,553,140	43,979	— 1.22	—
Feb. 28, 1927	3,597,119	203,058	— 5.34	—
Jan. 31, 1927	3,800,177	160,792	— 4.5	—
Dec. 31, 1926	3,960,969	153,522	+ 4.1	+
Nov. 30, 1926	3,807,447	123,786	+ 3.36	+
Oct. 31, 1926	3,683,661	90,152	+ 2.50	+
Sept. 30, 1926	3,593.509	51,174	+ 1.42	+
Aug. 31, 1926	3,542,335	60,187	— 1.67	—
July 31, 1926	3,602,652	124,010	+ 3.56	+
June 30, 1926	3,478,642	170,608	— 4.41	—
May 31, 1926	3,649,250	218,726	— 5.91	—
Apr. 30, 1926	3,867,976	511,959	—13.9	—
Mar. 31, 1926	4,379,935	236,887	— 5.13	—
Feb. 28, 1926	4,616,822	265,917	— 5.7	—
Jan. 31, 1926	4,882,739	150,625	— 3.0	—
Dec. 31, 1925	5,033,364	451,584	+ 9.8	+

T. A. Arthur Resigns

T. A. Arthur, vice president, Hickman, Williams & Co., ferroalloy interest since 1918, has resigned. Mr. Arthur became affiliated with the Pittsburgh office of Naylor & Co. in 1897, and two years later went with Banning Cooper & Co. In 1907, as salesman, he was associated with T. Coleman Ward, then Hickman, Williams resident manager at Pittsburgh, and in 1913 upon the incorporation of the company Mr. Arthur was made a partner. His future plans are undetermined.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$100.00
Ferromanganese, del. Pittsburgh	$104.79
Spiegeleisen, 19 to 21 per cent domestic furnace	32.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	85.50
Do, 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	93.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium, carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*These prices contract; spot $5 higher.

Plates

Tank Business Again Takes Lead at Chicago—Eastern Demand Is Improving

DEMAND for tank plates is broadening at Chicago, larger miscellaneous requirements are noted in eastern territory, while some important barge requirements remain to be satisfied at Pittsburgh. Fair size contracts for second quarter have been placed on the basis of 1.85c, Pittsburgh, and large users continue to obtain that price.

PLATE PRICES, PAGE 700

New York, March 13.—The confusion which a week ago surrounded the plate price has given way to a firmer condition. Plate mills find themselves with second quarter contracts with their regular trade mainly at 2.00c, base, Coatesville, equivalent to 2.17½c, delivered, New York. This price appears now to be a thing of the past and the current market price on new business here is 2.05c, base, Coatesville. One mill reports that nearly 50 per cent of its bookings in this territory the past week has been at 2.05c, Coatesville. Mills are getting a better price than in a long time. Considerable satisfaction is expressed over the present volume of demand. The Central Iron & Steel Co., it is learned, recently booked one of the largest floor plate orders ever placed. It involved 800 tons of this product for a Detroit automobile manufacturer. Carnegie Steel Co. has booked 500 to 600 tons of steel, mainly plates, for a yacht to be built by Newport News Shipbuilding & Dry Dock Co. for George F. Baker Jr.

Philadelphia, March 13.—Plate demand is good, the January and February rate being well maintained. Numerous specifications on first quarter contracts involve several hundred tons each. With second quarter contracts signed, mills generally are adhering to the new price, 2.05c, base, Coatesville, equivalent to 2.15c, delivered, Philadelphia. Eastern mills are operated at 60 per cent.

The Panama railroad is inquiring for a vessel requiring several thousand tons of steel, mainly plates.

Pittsburgh, March 13.—Plate specifications are small, although occasionally lots of 500 to 1000 tons or more are taken out. Tankage demand is light, and only a few small gas holders are under inquiry. While 1.90c has applied on a number of small contracts booked for second quarter, the larger portion of the tonnage is on books at 1.85c. In the spot market 1.90c is the generally quoted figure.

Cleveland, March 13.—New business in plates has been light, owing to the recent heavy second quarter contracting, but specifications are being maintained on the February level. While 1.90c, Pittsburgh, is generally quoted, it applies only to small business.

Chicago, March 13.—Tankage again has come to the fore in the plate market. Tank builders ordered 12,000 tons from Chicago district mills for work in West Texas. Some quiet inquiry is taking form which is expected to run into important tonnage. Tonnages have been closed in the past several weeks with little negotiation and open inquiry. Mills report improved specifications from manufacturing line. Building work this year is taking more material. Car building specifications have tapered but still are active. Some plate business has been contracted for second quarter at 2.00c. Mills report they are not extending contracts.

CONTRACTS PLACED

2400 tons, ten 85,000-barrel tanks, 120 feet in diameter and 40 feet high for Midland, Tex., to Reeves Bros.

1000 tons, pipe line project, Tacoma, Wash., to Birchfield Boiler Works, Tacoma.

620 tons, two 80,000-barrel tanks for Western Oil Co., Los Angeles to Western Pipe & Steel Co.

200 tons, two steel derrick boat hulls, 60 x 30 x 6 feet, and one oil barge 90 x 30 x 8 feet for the Atlantic, Gulf & Pacific Co., New York, to Dravo Contracting Co.

150 tons, two mooring barges, for United States Engineers, Vicksburg, Miss., to Dubuque Boat & Boiler Works, Dubuque, Iowa.

120 tons, blast furnace work for Gulf States Steel Co., Birmingham, Ala., by Tennessee Coal, Iron & Railroad Co., to be fabricated by Reeves Bros.

100 tons, gas tank for Atmospheric Nitrogen Corp., Hopewall, Va., to Stacey Mfg. Co.

CONTRACTS PENDING

8000 tons, Sequoia and Wildcat Canyon aqueducts, East Bay municipal utility district, Oakland, Calif.; welded, lock-bar or cast iron; to close April 20.

2000 tons, penstock, Seattle; Puget Sound Machinery Depot low bidder.

1800 tons, six car floats in two sizes for Philadelphia & Reading railroad, Philadelphia; bids close March 15.

Unstated tonnage, towboats and barges for Union Barge Line, Pittsburgh; bids being taken.

Unstated tonnage, 10 to 15 composite wood and steel barges, 120 x 30 x 7 feet, 8½ inches, for Mississippi River commission, Vicksburg, Miss.; bids close March 22.

The American Car & Foundry Co. has a six-reel motion picture, "In Service of Transportation," which illustrates the growth of the company from its original branch at Berwick, Pa.

Semifinished

Market Shows More Activity—Sheet Bar Sales at Chicago Largest in 18 Months

REPORTS from the principal markets indicate a steadily increasing demand for semifinished steel, especially sheet bars, billets and slabs. Sheet bar sales at Chicago are the largest in a year and a half. Valley producers are putting on additional open hearths. At Pittsburgh some users who have bought on a month-to-month basis are contracting for the entire second quarter.

SEMIFINISHED STEEL PRICES, PAGE 700

Pittsburgh, March 13.—Users of billets, slabs and sheet bars are specifying more actively. Many have protected themselves for second quarter, reverting to their former practice of covering three months. Various buyers have received intimations of a stronger price situation, and while an advance of $1 is suggested as a possibility the strength so far is chiefly noted in a disinclination to waive or split the $1 differential between small and large billets. Some makers now quote $34, minimum, on small billets, whereas some billets were shipped recently at $33.50, and even $33. Sheet bars are $34. Contracting for forging billets at $38 and $39 has tapered off, and specifications are meager. No wire rod sales have been reported at $44, but shipments are fair on lower price contracts. Skelp is 1.90c.

Youngstown, O., March 13.—Shipments of semifinished steel, especially sheet bars, have increased, and more open-hearth furnaces have been put on. This week 47 out of 53 open-hearths are active, bessemer steel output is at 75 per cent, and United States Steel Corp. subsidiaries in both valleys are at 85 per cent of ingot capacity. Sheet bars are sold at $34, Pittsburgh and Youngstown, and billets at $33.

Chicago, March 13.—Sheet bar sales are reported as the best of the past year and a half. Semifinished steel prices are firm. Billets, 4 x 4-inch base, are $34, Chicago. Sheet bars are steady at $35. Wire rods are $45.

Cleveland, March 13.—Specifications for semifinished steel are increasing. The McKinney Steel Co. has increased its operations from 11 to 13 of its 14 open hearths. Prices are steady.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Delivered to Consumers.

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.75 to 11.00
Boston (dealers)	9.00 to 9.10
Buffalo, No. 1	14.50 to 15.00
Buffalo, No. 2	13.00 to 13.50
Chicago	12.75 to 13.25
Cincinnati (dealers)	11.25 to 11.75
Cleveland, No. 1	13.75 to 14.00
Cleveland, No. 2	13.25 to 13.50
Detroit, No. 1	11.00 to 11.50
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania, No. 2	11.00 to 11.50
Bethlehem delivery	13.50 to 14.00
New York (dealers) (railroad)	10.00 to 10.85
New York (dealers) (yard)	7.00 to 7.50
Pittsburgh, No. 1	14.50 to 15.00
St. Louis	11.50 to 12.00
Valleys, No. 1	14.50 to 15.00

COMPRESSED SHEETS

Buffalo	12.75 to 13.25
Chicago	11.00 to 11.50
Cleveland	12.50 to 13.00
Detroit	10.00 to 10.50
Pittsburgh	14.00 to 14.25
Valleys	14.00 to 14.50

BUNDLED SHEETS

Buffalo	10.00 to 10.50
Cincinnati (dealers)	9.50 to 10.00
Cleveland	11.50 to 12.00
Eastern Pennsylvania	10.50 to 11.00
Pittsburgh	13.00 to 13.25
St. Louis	7.75 to 8.25

SHEET CLIPPINGS, LOOSE

Chicago	8.25 to 8.75
Cincinnati	8.75 to 9.25
Detroit	7.00 to 7.50
St. Louis	7.50 to 8.00

STEEL RAILS, SHORT

Birmingham	11.50 to 12.00
Buffalo	15.50 to 16.00
Chicago	15.25 to 15.75
Cincinnati (dealers)	16.00 to 16.50
Detroit	11.00 to 11.50
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston (consumers)	9.50 to 10.50
Buffalo	12.75 to 13.25
Chicago (net)	12.00 to 12.50
Cincinnati (dealers) net	8.50 to 9.00
Cleveland	12.00 to 12.50
Detroit (net tons)	10.50 to 11.00
Eastern Pennsylvania	12.00 to 12.50
New York (dealers) (mill)	8.25 to 8.50
Pittsburgh	12.50 to 12.75
St. Louis	13.00 to 13.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.75 to 17.25
Cincinnati (dealers)	13.00 to 13.50
Eastern Pennsylvania	17.50 to 18.50
Pitts. billet and bloom crops	18.00 to 18.50
Cleveland, billet, bloom crops	17.00 to 17.50

SHOVELING STEEL

Chicago	12.75 to 13.25
Pittsburgh	10.50 to 11.00
St. Louis	11.50 to 12.00

KNUCKLES, COUPLERS, SPRINGS

Buffalo	15.50 to 16.00
Chicago	14.25 to 14.75
Eastern Pennsylvania	16.50 to 17.00
Pittsburgh	16.50 to 17.00
St. Louis	13.00 to 13.50

FROGS, SWITCHES, GUARDS

Chicago	14.00 to 14.50
St. Louis	13.50 to 14.00

ANGLE BARS—STEEL

Buffalo	14.50 to 15.00
Chicago	14.25 to 14.75
St. Louis	11.50 to 12.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston (dealers)	10.00 to 10.50
Buffalo, No. 1	12.25 to 12.75
Buffalo, No. 2	14.25 to 14.75
Chicago, No. 1	12.60 to 13.15
Chicago, No. 2	12.75 to 13.25
Cincinnati, No. 1 (dealers)	10.75 to 11.25
Cleveland, No. 1	11.50 to 12.00
Eastern Pennsylvania	15.00 to 15.50
New York, No. 1 (dealers)	11.00 to 11.50
Pittsburgh, No. 1	11.00 to 11.50
Pittsburgh, No. 2	14.50 to 15.00
St. Louis, No. 1	9.75 to 10.25
St. Louis, No. 2	11.50 to 12.00

WROUGHT PIPE

Boston (dealers)	7.75 to 8.25
Eastern Pennsylvania	13.00
Buffalo	12.00to 12.50
New York (dealers)	8.00 to 8.50

YARD WROUGHT

Boston	8.00 to 8.50
Eastern Pennsylvania	14.50 to 15.00

BUSHELING

Buffalo	12.75 to 13.25
Chicago, No. 1	10.25 to 10.75
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Cincinnati, No. 2	6.50 to 7.00
Cleveland, No. 2	10.00 to 10.50
Pittsburgh, No. 1	12.00 to 12.50
St. Louis, No. 1	9.75 to 10.25
Detroit, mixed	7.25 to 7.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston	5.75 to 6.25
Buffalo	9.50 to 10.00
Chicago	8.00 to 8.50
Cincinnati (dealers)	8.00 to 8.50
Cleveland	8.00 to 8.25
Detroit	6.25 to 6.50
Eastern Pennsylvania	10.50 to 11.00
New York (dealers)	7.00 to 7.50
Pittsburgh	10.00 to 10.50
St. Louis	7.00 to 7.50

CAST IRON BORINGS

Birmingham (chemical)	13.00 to 13.50
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	9.50 to 10.00
Boston (dealers)	6.00 to 6.50
Buffalo	10.50 to 11.00
Chicago	10.00 to 10.25
Cincinnati (dealers)	8.75 to 9.25
Cleveland	10.00 to 10.50
Detroit	7.00 to 7.50
Eastern Pennsylvania	11.00
Eastern Pennsylvania (chem.)	14.50 to 15.00
New York (dealers)	6.75 to 7.35
Pittsburgh	10.50 to 11.00
St. Louis	9.00 to 9.50
Valleys	13.50

MIXED BORINGS AND TURNINGS

For blast furnace use

Boston (dealers)	5.75 to 6.25
Buffalo	10.00 to 10.50
Cincinnati (dealers)	8.75 to 9.25
Cleveland	10.25 to 10.75
Detroit	7.00 to 7.50
Eastern Pennsylvania	10.50 to 11.00
New York (dealers)	6.75 to 7.35
Pittsburgh	10.50 to 11.00

PIPES AND FLUES

Chicago (net)	8.50 to 9.00
Cincinnati (dealers)	7.75 to 8.25
St. Louis	9.50 to 10.00

RAILROAD GRATE BARS

Buffalo	11.00 to 11.50
Chicago (net)	11.75 to 12.25
Cleveland	12.00 to 12.50
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	8.00 to 8.50
St. Louis	11.50 to 12.00

FORGE FLASHINGS

Boston (dealers)	6.00 to 6.50
Buffalo	12.00 to 12.50
Chicago	9.50 to 10.00
Cleveland (over 10 in.)	12.50 to 13.00
Detroit	9.50 to 10.00
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	6.00 to 6.50
Chicago	15.50 to 16.00
Eastern Pennsylvania	11.00

ARCH BARS AND TRANSOMS

Chicago (net)	18.50 to 19.00
St. Louis	20.50 to 21.00

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	6.75 to 7.00
Buffalo	12.50 to 13.00
Chicago	10 25 to 10.75
Cleveland	12.00 to 12.25
Eastern Pennsylvania	12.00 to 12.50
Pittsburgh	13.00 to 13.50
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	15.50 to 16.00
Buffalo	16.75 to 17.25
Chicago	17.90 to 18.50
Cleveland	16.00 to 16.50
Eastern Pennsylvania	21.00 to 22.00
Pittsburgh	18.00 to 18.50
St. Louis	19.50 to 20.00

SHAFTING

Boston (shipping point)	13.00 to 13.50
Chicago	17.35 to 17.90
Eastern Pennsylvania	17.50 to 18.00
New York (dealers)	14.00 to 14.50
St. Louis	16.50 to 17.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	14.00 to 15.00
Boston (consumers)	14.00 to 14.50
Buffalo, iron	13.25 to 13.75
Buffalo, steel	15.50 to 16.00
Chicago, iron	14.25 to 14.75
Chicago, rolled steel	15.50 to 16.00
Cincinnati	12.50 to 13.00
Eastern Pennsylvania	16.00 to 16.50
New York iron (dealers)	12.00
Pittsburgh, iron	14.25 to 15.00
Pittsburgh, steel	16.00 to 16.50
St. Louis, iron	13.50 to 14.00
St. Louis, steel	14.25 to 14.75

NO. 1 CAST SCRAP

Birmingham, cupola	14.00 to 14.50
Boston	14.50 to 15.00
Buffalo	14.50 to 15.00
Chicago, No. 1 machinery	15.65 to 16.25
Chicago, No. 1 railroad	14.30 to 14.85
Chicago, No. 1 agricultural	14.55 to 15.10
Cincinnati No. 1 machinery cupola (net tons dealers)	14.50 to 15.00
Cleveland, cupola	16.50 to 17.00
Detroit (net tons)	12.25 to 12.75
Eastern Pennsylvania (cupola)	16.50 to 17.00
New York, cupola (dealers)	13.50
Pittsburgh, cupola	14.50 to 15.00
San Francisco, delivered	20.00 to 21.00
Seattle	14.50 to 14.75
St. Louis, railroad	13.50 to 14.00
St. Louis, agricultural	13.50 to 14.00
St. Louis, machinery	14.00 to 14.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo (breakable)	11.50 to 12.00
Cleveland (breakable)	12.25 to 12.50
Detroit (automobile) (net tons)	20.00 to 21.00
Detroit, machinery cast No. 1 (net)	12.25 to 12.75
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	11.75 to 12.00
Pittsburgh	12.50 to 13.00

MALLEABLE

Boston, railroad	13.00 to 13.50
Buffalo	15.00 to 15.50
Chicago, agricultural	11.75 to 12.25
Chicago, railroad	12.75 to 13.25
Cincinnati, railroad (dealers)	12.50 to 13.00
Cincinnati, agricultural (dealers)	12.25 to 12.75
Cleveland, agricultural	15.00 to 15.50
Cleveland, railroad	15.50 to 16.00
Detroit, auto	14.50 to 15.00
Pittsburgh, railroad	14.50 to 15.00
St. Louis, agricultural	12.00 to 12.50
St. Louis, railroad	12.00 to 12.50

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.50 to 14.00
Boston (dealers)	10.00 to 10.50
Buffalo	14.50 to 15.00
Chicago	14.75 to 15.25
Eastern Pennsylvania	15.25 to 15.50
New York	11.00 to 12.00
Pittsburgh district	16.50 to 17.00
St. Louis	13.75 to 14.25

LOCOMOTIVE TIRES

Chicago, No. 1	14.00 to 14.50
Chicago, cut	16.00 to 16.50
St. Louis, No. 1	12.25 to 12.75

LOW PHOSPHORUS PUNCHINGS

Chicago	14.00 to 14.50
Pittsburgh	16.50 to 17.00

Scrap

Prices Weak, Supply Large, Buying Small in Face of Ample Contracts and Stocks

AMPLE supplies and large tonnages on order are preventing new buying of iron and steel scrap. Large production supplies ample material for contracts and heavy consumption by melters has no effect in strengthening prices, which are weak, nominal and in some markets lower. Special grades are in relatively better demand.

Chicago, March 13.—Iron and steel scrap consumers are absorbing the heavy shipments of material of the past month. As a result the market has an appearance of weakness. A large consumer of heavy melting steel came into the market for its usual monthly purchase at $13.25 and this grade continues at $12.75 to $13.25. It is understood melting steel at $13.50 has been turned down by consumers. Strictly railroad grades of melting steel are relatively more scarce than the mixed grades. Specialty items are fairly strong. Cast and malleable continue decidedly weak. Little action is expected by consumers until recent shipments are absorbed.

Boston, March 13.—Several grades of iron and steel scrap have turned somewhat weaker. There was an average decline of at least 50 cents a ton in many items, including T rails, railroad wrought, skeleton, forge flashings, chemical borings, textile machinery cast, stove plate and railroad malleable. While the general situation in other materials was also a trifle weaker, no actual reductions are noted.

New York, March 13.—Weakness dominates the scrap market, although dealers' buying prices are substantially unchanged from a week ago. This is attributed to greater freedom of supplies, particularly in railroad sources and lack of fresh consuming demand. Virtually all trading is for account of back orders.

Pittsburgh, March 13.—Another large sale of heavy melting steel to a nearby mill at $14.75 takes that melter out of the market. Apparently, a high premium was paid by an Ohio river mill for steel on the Pennsylvania railroad list since this tonnage is said to have brought $15.25 to $15.35. Scrap buyers are concentrating their purchases. They have found that to split up orders creates more competition and the market is bid up against themselves. Machine shop turnings are weaker, having gone to $10.50.

Buffalo, March 13.—Demand for specialties is improved, although no large tonnages of heavy melting steel have been purchased. Large shipments are being made against old orders. Inspection is close and reductions are lowering average prices.

Cleveland, March 13.—Leading steelmakers in Cleveland and the Valley hold to their policy of regulating shipments of iron and steel scrap, preventing the market from recovering from its recent dullness. Dealers are not disposed to buy, and with ample supplies available prices fail to strengthen. Due to the lack of a market, prices in many cases are nominal, although no revisions are noted.

Detroit, March 13.—Iron and steel scrap prices have broken badly under the weight of greatly increased offerings, especially of lighter grades. Consumers in the Cleveland, Pittsburgh and Mahoning valley districts continue to regulate receipts, while borings, turnings and bundles come out in increased volume. Chevrolet will have 12,000 tons to market this month and Hudson-Essex 5000. There is talk of a reduction in railroad freight rates in scrap to meet water competition.

New price levels include $7 to $7.50 on borings, $10 to $10.50 on compressed sheets, $7 to $7.50 on mixed borings, $8.50 to $9 on heavy cast and $11 to $11.50 on No. 1 melting steel.

St. Louis, March 13.—Dealers in iron and steel scrap find it increasingly difficult to obtain orders and contracts are being worked out. While the melt holds up well, scrap is plentiful. Melters are well covered, some through the second quarter, and the carryover from first quarter will be larger than expected. Prices continue their downward course, declines ranging from 25 cents to $1 per ton.

Birmingham, Ala., March 13.—Improvement is observed in scrap iron and steel. Several sales have been made with stipulation for early delivery. Heavy melting steel is held at $10.75 minimum, with $11 being asked.

Cincinnati, March 13.—Iron and steel scrap continues quiet with an occasional sale. One Ohio melter placed an order for 15,000 tons of miscellaneous scrap with a local house. Prices are unchanged.

Philadelphia, March 13.—A fair volume of scattered buying of iron and steel scrap is being done but no large transactions are seen. Prices are unchanged.

C. Kesselhon Sheet Metal Works, South Milwaukee, Wis., has been dissolved and the business will be continued by Kurt Geschrei.

Sheets

Mills Increase Operations—New Prices to be Tested Soon—Some Concessions Still Noted

INCREASING demand for sheets is reflected in advancing rates of mill operation. Those in the Pittsburgh district have advanced 5 per cent in the past week. New orders are well diversified and of fair proportions. A test of prices is expected within a week or ten days, especially when motorcar manufacturers place orders. Some concessions still are offered.

SHEET PRICES, PAGE 700

Detroit, March 13.—Second quarter sheet prices face their real test this week, when some large users will sign requirement contracts. On the few small sales that have been made, autobody has held at 4.15c, Pittsburgh, and the mills are confident of holding this price. On black and blue annealed there is a little uncertainty. One maker quoted 2.90c on black and lost when this price was apparently shaded $1. Blue annealed at 2.10c also is not so firm at autobody seems at 4.15c. Sheets, however, are in fewer hands and those makers believed to be weak have small capacity. Specifications are expanding. Ford Motor Co. is advancing its releases. Most General Motors units are specifying heavily. Sheetmakers believe a good second quarter is ahead.

Buffalo, March 13.—Automobile manufacturers have made large purchases for second quarter. The price on full finished is 4.15c, Pittsburgh. Buffalo mills are operating at or slightly better than 80 per cent of capacity.

Chicago, March 13.—Sheet sales have been heavy. Operations are around 75 per cent. Small tank builders and roofing contractors are busy. Demand from the South has been good the past few weeks. Important backlogs are being accumulated for second quarter. Deliveries are about six weeks deferred. Mills report prices are steady. Chicago delivered quotations are 3.05c for No. 24 black; 3.90c for No. 24 galvanized; and 2.25c to 2.35c for No. 10 blue annealed.

St. Louis, March 13.—Producers and distributors report improvement in demand for sheets greater than can

be accounted for by seasonal considerations. Jobbers have been fair buyers. Specifications from the automotive and car building industries are better. Prices are firm.

Cincinnati, March 13.—February sheet sales exceeded those of January, and present indications are that March sales will be larger than in February. Specifications have increased since March 1. Prices are steady.

Pittsburgh, March 13.—Some of the larger sheetmakers with good backlogs are receiving specifications which have enabled them to increase their operating rates at least 5 per cent. The general average is 85 to 90 per cent for this territory. The American Sheet & Tin Plate Co. has gone to 82 per cent from 77 per cent, maintained for two weeks or more. Some independents are operating nearly full. Demand is fairly diversified. In the West and Middle West it is particularly heavy, and prices are firmer there than in the East. The usual amount of price cutting is noted. Generally 2.10c applies on blue annealed, 2.90c on black, 3.75c on galvanized and 4.15c on full finished. A fairly large number of users are under contract for second quarter, and others will be protected before the month is out.

Cleveland, March 13.—Specifications for steel sheets continue to come to mills in small lots but in sufficient quantity to maintain operations of several large producers at 80 to 100 per cent of capacity. Although, generally, mills are attempting to obtain 2.90c, Pittsburgh on black sheets, 2.10c, on blue annealed, 3.75c on galvanized, and 4.15c on autobody some of these quotations have been shaded. On a recent tonnage three makers quoted 2.90c, but with mill base, figuring back to an equivalent of about 2.80c, Pittsburgh. Releases on autobody tonnage are heavy.

Youngstown, O., March 13.—Test of the advanced sheet prices for second quarter is expected to come within ten days. Important consumers of sheets and strip in the Michigan district are expected to close. A short time ago Ford Motor Co. is said to have bought a tonnage of autobody sheets from an Ohio valley maker, paying 4.15c, Pittsburgh. Mill operations this week here among independent sheetmakers are 89 per cent, against 88 per cent last week. Every plant has some mills busy; nine at the Thomas plant of the Empire Steel Co., six at Falcon and six at Waddell, while Republic Iron & Steel has 16 units active at Niles where Mahoning Valley has six units active. Small sales of a routine character continue to be made of common black sheets at 2.90c, Pittsburgh; while blue annealed is 1.90c to 2.00c, autobody at 4.15c and galvanized at 3.70c to 3.75c.

Philadelphia, March 13.—Sheet prices are untested because few users have contracted, and others are delaying action. In the meantime orders are being placed at 3.75c, base, Pittsburgh, for galvanized; 2.10c for blue annealed and 2.75c to 2.90c for black. Specifications on first quarter contracts are increasing.

Tin Plate

Specifications and Orders Reflect Fairly Good Demand

TIN PLATE PRICES, PAGE 700

Pittsburgh, March 13.—General line can manufacture is fairly active, as indicated by specifications and a fairly large number of small and medium-size orders. Much tonnage has been anticipated, and stocks of cans as well as tin plate are held in reserve. Unless all signs fail, 1928 will be a year of large consumption. The American Sheet & Tin Plate Co. has advanced one point in operations, going to 78 per cent. Independents are operating on an average of about 80 per cent. The price is unchanged at $5.25.

New York, March 13.—Expectations for a large increase in demand for tin plate on first half contracts have not yet materialized. This is because distribution of tin plate products has not developed as anticipated. Mills continue to operate full, although with little backlog. Second quarter contracts for tin mill black plate have been closed by consumers in this territory at 2.80c to 2.90c, base, Pittsburgh, and the price now generally is 3.00c.

Planning Fuels Meeting

The second national meeting of the fuels division of the American Society of Mechanical Engineers will be held in Cleveland, Sept. 17-20, it has just been announced. The program of this meeting is being planned in accordance with the policy of the division to bring together all of the latest information concerning the utilization of fuels. A comprehensive program is being arranged by the meeting committee.

Pipe

Jobber Demand for Merchant Pipe Is Shade Better—Cast Prices Strengthening

BUYING of merchant pipe shows a little improvement although jobbers in some districts are showing more interest in stocking for spring building and repair needs. Cast pipe prices are strengthening with $30, Birmingham, minimum on most tonnage in the Chicago district, and one leading maker quoting $31, Birmingham, for eastern delivery.

PIPE PRICES, PAGE 700 AND 736

Pittsburgh, March 13.—With spring in sight, standard full weight merchant pipe jobbers are ordering more freely to bring their stocks up to normal. While individual orders mostly are small, the accumulation for each of several makers here over a period of a week or 10 days represents a fairly large tonnage. Conduit pipe still is in good demand. Oil country jobbers continue to hang back and the trade can see no real improvement in the oil situation this year. Gas line pipe business promises much tonnage, and the two particularly large jobs projected are the line from Omaha, Nebr., and the one to St. Louis. The latter will probably involve between 100,000 and 125,000 tons, and 20 to 24-inch pipe will be utilized. Pipe mill operations are averaging not more than 50 or 60 per cent.

New York, March 13.—Cast pipe prices are showing a slightly firmer tendency, with the possibility of a test being afforded here this week, when the local water department opens bids on approximately 5000 tons. One indication of a slightly firmer market is a price, the equivalent of $28.50, Birmingham, on 150 tons for Montclair, N. J., while another is the establishment, effective March 12, of a $31, Birmingham base by a leading seller on its pipe.

Chicago, March 13.—Sellers of cast iron water pipe in this district are obtaining higher prices for contract work that has been coming out freely. The price range has been advanced to a range of $29 to $30, base Birmingham. It is reported that little tonnage is going under $30, base. Some makers have backlogs of 30 days, but the average business is 15 days and less. Barberton, O., asked bids yesterday on 1000 tons of 12-inch pipe, and it is understood Chicago will buy 200 tons of fittings soon.

Birmingham, Ala., March 13.—Increased production of cast iron pipe, especially pressure pipe, is in sight. National Cast Iron Pipe Co. will build an addition to its plant to increase output.

CONTRACTS PLACED

2700 tons, Tuscaloosa, Ala., to Central Foundry Co.

550 tons, waterworks near Syracuse, N. Y., to McWane Cast Iron Pipe Co.

475 tons, 6 to 24-inch pipe for Saginaw, Mich., to James B. Clow & Sons.

420 tons, 4 to 12-inch, Tucson, Ariz., to unnamed interest.

188 tons, 20-inch class C, Tacoma, Wash., to United States Cast Iron Pipe & Foundry Co.

150 tons, cast pipe, Montclair, N. J., to National Cast Iron Pipe Co.

126 tons, 18-inch class C, San Diego, Calif., to National Cast Iron Pipe Co.

CONTRACTS PENDING

25,000 tons, 50, 56 and 60-inch, East Bay municipal utility district, Oakland, Calif.; bids to close April 20.
1000 tons, 4 to 12-inch pipe for Barberton, O.; bids in.
663 tons, 6 to 20-inch, Santa Barbara, Calif.; United States Cast Iron Pipe & Foundry Co. low bidder.
500 tons, 10 to 24-inch class B, Santa Ana, Calif.; bids in March 19.
170 tons, 4 to 8-inch class B, Aberdeen, Wash; bids in March 21.
Unstated tonnage, Madison, N. J.; Warren Foundry & Pipe Co. low on a foot basis and B. Nicoll & Co. low on a ton basis.

Iron Ore

Estimate Requirements Will Be Larger Than Last Season

IRON ORE PRICES, PAGE 730

Cleveland, March 13.—Users of Lake Superior iron ore are estimating their requirements for the coming season, and indications point to a larger demand than in 1927. The Ford Motor Co.'s inquiry is the only one of importance in the open market, other users having long-term contracts with usual sources of supply. While some of the leading producers have not submitted figures on the Ford inquiry, feeling that the market is strengthening, it is reported others have indicated a willingness to close at last year's prices. Action is not expected for several weeks. The amount of iron ore on Lake Erie docks March 1 was only 75,200 tons less than March 1, 1927. The Lake Superior Iron Ore association reports the following receipts, shipments and balances for the season, in gross tons:

	Receipts	Shipments	Dock balance Mar. 1 1928
Buffalo	3,924,081	135,402	5,885
Erie	1,146,479	1,167,574	67,948
Conneaut ..	8,129,859	7,753,689	1,624,562
Ashtabula ..	7,154,052	7,071,574	2,038,027
Fairport	1,902,168	1,814,269	376,032
Cleveland ..	8,295,971	5,452,214	1,208,947
Lorain	3,520,023	1,814,058	163,178
Huron	1,175,294	1,217,361	419,322
Toledo	1,304,864	584,131	83,507
Total 36,552,791		27,010,272	5,987,408
One year previous	42,287,063	31,681,717	6,062,608

Taylor Society To Meet

The spring meeting of the Taylor society will be held at the Detroit-Leland hotel, Detroit, according to an announcement just made. The subject of this meeting will be "Time Study." Five sessions will be devoted to special phases of the topic. Details of the program are to be announced shortly.

Two hundred cars of the Worcester Consolidated Street Railway Co., Worcester, Mass., are being burned for scrap.

Bars

Full Specifications on Low-Priced Tonnages—Second Quarter Contracts Well Covered

CONSUMERS of steel bars are taking steady tonnages at a high rate. Specifications are covering first quarter contracts fully, as lower prices prevailed on most of that business. At the same time second quarter requirements are well covered on mill books at higher rates. Deliveries continue to be deferred several weeks.

BAR PRICES, PAGE 700

Chicago, March 13.—Users of bar mill products are specifying heavily on 1.90c contracts. Specifications during the week are reported 15 to 20 per cent above the preceding week, which was exceeded only by three or four individual weeks in the past two years. Automotive and farm implement lines continue to lead. Despite the fact that implement and tractor works are approaching the close of their active manufacturing season for the spring trade, particularly in tillage tools, no appreciable lessening in specifications is noted. Forgers continue to be heavy users also. The outlook for cold bar finishers continues good for the next 30 to 60 days at least. While bar users may ask for extensions and protections on contracts for second quarter, present specifications indicate that few obligations will remain outstanding as the first quarter ends. Car shops are taking full tonnages in view of present and pending car orders. Bar deliveries again remain at four to six weeks.

Soft steel bar producers report that a few second quarter contracts are being booked at 2.00c, Chicago. Second quarter contracts are being taken at 1.85c by rail steel bar mills. Both Chicago Heights mills are operating at full double turn. Rail steel bar shipments are heavy, to manufacturing and reinforcing bar trades. Bar iron is steady at 2.00c, Chicago.

New York, March 13.—Second quarter steel bar requirements now are pretty well under contract. Most buyers took prompt action when the advance to 1.90c, base, Pittsburgh, was being made. Since then, a number of contracts have been placed at 1.90c, which now appears to be the firm price. In the meantime, specifications on first quarter bar contracts are increasing, and mills say indications show comparatively little tonnage will be unspecified on first quarter contracts.

Pittsburgh, March 13.—Merchant steel bar specifications against first quarter contracts are active because most carry low prices. A number of larger customers were booked for second quarter at 1.85c, but small contracts are closed for that delivery at 1.90c. This also applies in the spot market, and while some have quoted 2.00c on single carloads, particularly when made up of numerous sizes, others are willing to accept 1.90c. Specifications from cold bar finishers are active because of automotive demands.

Refined iron bar orders are small. Customers do not anticipate needs, and hand-to-mouth buying prevails. Prices start at 2.75c.

Buffalo, March 13.—Demand for bars shows improvement. Open hearth operation is about 80 per cent of capacity, with indications that late March shipments and early buying for second quarter will hold it there. Prices are showing more firmness.

Philadelphia, March 13.—After recent contracting of steel bars for second quarter at 1.85c, Pittsburgh, mills are asking 1.90c, but the old level has not wholly disappeared. Specifications are increasing as the quarter nears its close.

Detroit, March 13.—Sellers of bars, except those on a Cleveland base, are generally asking 1.90c, Pittsburgh, but coverage at 1.85c for second quarter was heavy. Shipments into this district are running ahead of the February rate, and the month undoubtedly will be the best of the quarter. A feeling of confidence in the situation pervades the bar market. A first half better than last year both in bookings and shipments is believed certain.

Cleveland, March 13.—Automotive interests continued to provide the heaviest tonnage for steel bars and is apparent that this source will stand up another 60 days. Bolt, nut and rivet makers are fair buyers. Most users are under second quarter contracts at 1.85c, Pittsburgh. On current business 1.90c, Pittsburgh or Cleveland mill, is asked.

Quota Report Is Ready

Washington, March 13.—The President will shortly submit to the senate reports on immigration quotas compiled by the secretaries of state, labor and commerce, requested in a resolution passed at the last session of congress.

A towboat of the Carnegie Steel Co., Pittsburgh, is averaging 115 miles per day down stream to New Orleans. A Carnegie steamer recently averaged 100 miles per day on the round trip, making it in 40 days and 16 hours.

Structural Shapes

Shape Consumers Press Mills for Delivery of Low Price Tonnage on First Quarter Contracts—Large Awards Lacking

WITH but half of March left to take out tonnage contracted for at lower than present prices, structural steel consumers are pressing mills to obtain the maximum covered on first quarter books. In the Chicago district shape mills are four to six weeks behind on shipments.

Building inquiries from the Northwest continue good, but a decline in activity of the week was registered in the New York district. Several heavy projects are contemplated there which have not developed to the active stage. Awards of the week included few projects requiring 1000 tons or more, one of the largest being a bridge at Providence, R. I., taking 5000 tons. Other awards include 6675 tons for buildings in Cumberland, Md., and 4000 tons for a Wheeling Steel Corp. plant.

STRUCTURAL SHAPE PRICES, PAGE 700

New York, March 13.—Structural demand is moderate, with few large inquiries or orders. Plain and fabricated material prices are unchanged.

Structural bookings in February in the metropolitan district declined from January, according to the structural steel board of trade, amounting to 24,850 tons, as compared with 30,204 tons in January and 59,071 tons in February, 1927. The showing for the first two months is 55,054 tons as against 109,195 tons for the first two months of 1927. These figures are exclusive of subways, bridges and piers.

Boston, March 13.—Structural fabricators are not much interested in the market because of the situation in prices.

Pittsburgh, March 13.—While competition still is keen among the fabricators in this district, several have taken a decidedly firmer stand and have withdrawn bids on certain projects to file new ones on a higher basis by 9 or 10 per cent. Plain material is contracted for at both 1.85c and 1.90c levels for second quarter, depending upon the tonnage involved. Some small business in the prompt market is being closed at 1.90c. Most of the pending jobs in this territory involve small tonnages.

Cleveland, March 13.—Structural inquiries and awards in this district for the week were few and small. Specifications against first quarter plain material contracts continue in good volume but second quarter booking was not active the past week. Contracts are being made at 1.85c to 1.90c, Pittsburgh, depending upon the attractiveness.

Chicago, March 13.—Specifications for plain material are heavy. Indications are that most users of plain material will specify fully against existing first quarter contracts. It is doubtful whether much tonnage will be carried over into the next quarter. Building inquiry in the West and Northwest continues heavy. A lull is expected in office building construction in Chicago in the next few months. It is probable all the larger pending jobs will be placed. Mills are four to six weeks behind on shipments and are negotiating second quarter contracts on the 2.00c, Chicago, basis.

Awards Compared

	Tons
Awards this week	52,692
Awards last week	30,688
Awards two weeks ago	38,583
Awards this week in 1927	45,723
Average weekly awards, Feb.	55,475
Average weekly awards, 1928	49,874
Total awards to date, 1927	424,963
Total awards to date, 1928	498,741

CONTRACTS PLACED

6675 tons, buildings in Cumberland, Md., to McClintic-Marshall Co.

5000 tons, Fisher Body plants for National Plate Glass Co., at Ottawa, Ill., and Detroit, to Mississippi Valley Structural Steel Co., previously noted with city and fabricator unstated.

5000 tons, bridge, Providence, R. I., to McClintic-Marshall Co. This project also includes a large contract for cable wire to unstated mill.

4750 tons, polishing and grinding building for Pittsburgh Plate Glass Co., Ford City, Pa., to McClintic-Marshall Co.

4285 tons, Steuben club, Chicago, to Gage Structural Steel Co.; noted last week as involving 4050 tons.

4000 tons, plant for Wheeling Steel Corp., Wheeling, W. Va., at Steubenville, O., to J. E. Moss Iron Works.

4000 tons, underframes for 2000 refrigerator cars for Pacific Fruit Express Co., San Francisco, to Seattle Car & Foundry Co. and Pullman Car & Mfg. Corp.

3300 tons, bridge over Newton creek, Queens, Long Island, N. Y., to Bethlehem Steel Co., award previously noted as involving 3080 tons.

3000 tons, office building at Michigan avenue and East South Water street, Chicago, to American Bridge Co.

2800 tons, approaches and bascule span, Robey street bridge, Chicago, 1600 tons approach through Great Lakes Dredge & Dock Co., to American Bridge Co., 1200 tons, bascule span, to Mt. Vernon Bridge Co.

1800 tons, Santa Fe office building at Amarillo, Tex., to Mosher Steel & Machinery Co., previously noted with city and fabricator unstated.

1800 tons, apartment, Park avenue and Seventieth street, New York, to Hay Foundry & Iron Works.

1792 tons, grandstand for race track at Laurel, Md., to Belmont Iron Works.

1600 tons, loft on West Thirty-fifth street, New York, to Harris Structural Steel Co.

1500 tons, exchange building for Northwestern Bell Telephone Co., Des Moines, Iowa, to Pittsburgh-Des Moines Steel Co.

1075 tons, two apartments at 19 East Ninety-eighth street and 329 East Fifty-seventh street, New York, to Paterson Bridge Co.

1000 tons, loft, 241 West Twenty-ninth street, New York, to Hinkle Steel Construction Co.

1000 tons, loft on West Thirty-sixth street, New York, to Harris Structural Steel Co.

830 tons, six Vermont state highway bridges, to be divided between American Bridge Co. and Bethlehem Steel Co.

800 tons, building for Celanese Corp., Cumberland, Md., through Hughes-Foulkrod Co., general contractor, to McClintic-Marshall Co.

800 tons, apartment at 39 Prospect avenue, East Orange, N. J., to Hedden Iron Construction Co.

800 tons, bridge work for Chicago, Milwaukee, St. Paul & Pacific railroad, to unstated fabricators.

700 tons, field house for University of Indiana, Bloomington, Ind., to Butler Foundry & Machine Co.

675 tons, women's dormitory, Cornell university, Ithaca, N. Y., to McClintic-Marshall Co., previously noted going to unstated maker.

650 tons, Central Catholic high school, Toledo, O., through A. Bentley & Sons, that city, contractor, to Massillon Bridge & Structural Co.

565 tons, building for American Bank & Trust Co., Philadelphia, to American Bridge Co.

500 tons, motion picture theater, East Liberty, Pa., to Fort Pitt Bridge Works.

500 tons, Market street viaduct, Shreveport, La., to Wisconsin Bridge & Iron Co.

479 tons, Nesbitt Memorial hospital, Kingston, Pa., to Bethlehem Fabricators Inc.

470 tons, building for Continental Terminals Co., Scranton, Pa., through Lundoff-Bicknell Co., Cleveland contractor, to Bethlehem Fabricators, Inc.

465 tons, 16-story apartment, Ninety-sixth street, New York, to Bethlehem Fabricators Inc.

450 tons, 12-story loft, showroom and office building, Fifth avenue, New York, to Bethlehem Fabricators, Inc.

450 tons, Pythian temple, St. Louis, to Mississippi Valley Structural Steel Co.

400 tons, state highway bridge in New Jersey, to Phoenix Bridge Co.

350 tons, uptown theater, Philadelphia, to Bethlehem Fabricators Inc. instead of McClintic-Marshall Co. as previously announced.

350 tons, highway bridge at Albuquerque, N. M., to Kansas City Structural Steel Co.

300 tons, homeopathic hospital, Yonkers, N. Y., to Hinkle Steel Construction Co.

300 tons, apartment at East Eighty-fifth street, New York, to Easton Structural Steel Co.

300 tons, apartment, Stockton and Pine streets, San Francisco, to Herrick Iron Works.

270 tons, Hendel theater, Pittsburgh, to Guibert Steel Co.; incorrectly reported last week as going to Keystone Engineering Co.

250 tons, Dayton Art Museum, Dayton, O., through Hill-Smith Co., that city, contractor, to Massillon Bridge & Structural Co.

225 tons, sheet piling, Ocean Beach esplanade, San Francisco, to United States Steel Products Co.

200 tons, Nafziger Bakery Co., building, St. Louis, to Mississippi Valley Structural Steel Co.

200 tons, Sears, Roebuck & Co. warehouse, Boston, to New England Structural Co.

200 tons, Quaker City Cold Storage building, Philadelphia, to McClintic-Marshall Co.

170 tons, 6-story building, Schenectady, N. Y.,

to Bethlehem Fabricators Inc.

166 tons, bridge for Seaboard Air Line at Stony Creek, Va., to Virginia Bridge & Iron Co.

150 tons, bridge for the New York, New Haven & Hartford railroad, to American Bridge Co.

100 tons, high school, Monrovia, Calif., to Minneapolis Steel & Machinery Co.

100 tons, high school, South Pasadena, Calif., to Minneapolis Steel & Machinery Co.

100 tons, building for Seaboard By-Product Coke Co., through Cooper Construction Co., Pittsburgh, to McClintic-Marshall Co.

100 tons, plumbing station for Chicago, to Gage Structural Steel Co.

100 tons, Sherman hotel shops and bank building, Chicago, to Wendnagel & Co.

CONTRACTS PENDING

5000 tons, DeWitt Clinton hotel, Seventh and Thirty-first street, New York; bids asked.

3000 tons, Coyote Point bridge, San Francisco; bids in.

1600 tons, power house, New Haven, Conn.; bids closed March 10.

1000 tons, building for lumber mill in the state of Washington.

1000 tons, loft, 347 West Thirty-ninth street, New York; bids asked.

855 tons, theater and office building, Seventh avenue and Fifty-third street, New York, bids asked.

750 tons, Coraopolis bridge No. 2 over Ohio river; bids to be closed March 21 by Allegheny county commissioners.

650 tons, office, Church and Worth streets, New York.

600 to 700 tons, highway bridges, New York state.

600 tons, two Pennsylvania railroad bridges, one at Harrisburg, Pa., and the other near Philadelphia; bids asked.

600 tons, high school building at Great Falls, Mont.

600 tons, columns and girders for two apartment buildings, Chicago.

600 tons, addition to switch house of Edison Electric Illuminating Co., Weymouth, Mass.

600 tons, new office building, Albany, N. Y.

550 tons, loft, Astor place, New York; bids asked.

450 tons, office, 23 West Forty-fifth street, New York; bids asked.

300 tons, apartment, Wadsworth terrace, New York; bids asked.

300 tons, building at Sweetwater, Tex., for United States Gypsum Co., Chicago.

250 tons, superstructure for bridge No. 2 over Pennsylvania railroad, East Pittsburgh, and McKeesport boulevard, Pittsburgh; bids to be closed March 21 by Allegheny county commissioners.

250 tons, theater, Fitchburg, Mass.; Morgan Co., Boston, general contractor.

175 tons, municipal building, Freeport, Long Island, N. Y.; bids asked.

175 tons, dormitory for St. Michaels academy, Murdock avenue, Bronx, New York.

150 tons, state highway bridge, Delaware; bids asked.

150 tons, Bell Telephone Co. building, Wilkinsburg, Pa.; bids about to be asked.

150 tons, plant for National Milling Co. at Toledo, O.; general contract to unstated New York fabricator.

100 tons, Pitcairn, Pa., high school; bids closed March 12.

Unstated tonnage, addition to Wilsonian high school, Angelica, N. Y.

Unstated tonnage, shops at Dickerson Run, near Connellsville, Pa., for Pittsburgh & Lake Erie railroad; bids about to be asked.

Unstated tonnage, nurses' home, St. Catherine's hospital, Bushwick avenue, Brooklyn, N. Y.

Unstated tonnage, school and convent, Gunhill road, Bronx, N. Y.; Weimester & Brady, architects.

Unstated tonnage, four-span steel bridge, 280 feet long, to replace Broadway highway bridge over New York Central tracks, one mile west of Depew, N. Y.; construction authorized by Public Service commission.

Unstated tonnage, interstate bridge at Marinette, Wis.—Menominee, Mich.; plans ready March 12. Klug & Smith, Milwaukee, consulting engineers. Estimated cost $120,000. Two-arm horizontal swing span, 100-foot clearance.

Concrete Bars

Lettings of Week Involve Small Lots—Inquiries Continue Numerous

LEADING concrete bar awards reported during the week included 2500 tons for an automotive interest at Toledo, O. Featuring inquiries of the week was 2000 tons for a dam in Lower California, Mexico, for which European bars probably will be bought. Inquiries continue numerous but lethargy in closing contracts is evident. Prices appear to be maintained without difficulty.

REINFORCING BAR PRICES, PAGE 700

New York, March 13.—The largest concrete reinforcing bar tonnage under negotiation here at present involves 2000 tons for Rodriguez dam in lower California, Mex., to be built by Ambursen Construction Co., New York. It is thought likely that these bars will be ordered from European makers. Comparatively small lettings have featured the concrete reinforcing bar market here the past week, but a number of substantial tonnages are under negotiation. The market on mill shipments continues 1.95c to 2.00c, base, Pittsburgh, but it is thought likely that the 1.95c price will disappear within the next week. Warehouse prices in New York continue to range from 2.80c to 3.24c, base, delivered locally.

Boston, March 13.—Continuation of orders for less than 100 tons is the situation in concrete bars. United Shoe Machinery Co. is contemplating a 14-story structure on Federal street, taking 400 to 500 tons. Prices are firm at 2.365c, base, Boston, and 2.70c to 2.80c, dock.

Pittsburgh, March 13.—Numerous concrete bar jobs are being let but the majority involve 5, 10 or 15 tons at a time. Most jobs up for inquiry involve similar amounts. Within the next month the trade expects larger work to come out. The minimum price on new billet bars here is 1.90c.

Buffalo, March 13.—Reinforcing bar sales are opening up later than usual but early March snows delaying building and road work are believed responsible. Prices are being maintained on a higher base for small lots, sellers quoting 2.40c to 2.75c on ordinary tonnages delivered by truck in this district. Operations of reinforcing bar mills is below average for the season.

Cleveland, March 13.—Lack of inquiries for concrete bars is making the local market dull. Road work in northern Ohio is requiring mostly steel mesh with few bars involved in the construction. Building projects are requiring lots of 50 tons and less. Two Sears, Roebuck & Co. stores, for which the B-W Construction Co., Chicago, has the general contract, will require 300 to 600 tons of bars. In the face of weakening merchant bar contract prices and dull demand, the local concrete bar market has been maintained at 1.85c to 1.90c, Cleveland mill. Rail steel bars are 1.75c, mill, although on recent contracts this quotation has been shaded by $3 to $5 a ton.

Chicago, March 13.—Billet reinforcing bar fabricators are about 50 per cent engaged in this district. Rail steel shipments are considerably ahead of last year. Shipments are three to four weeks behind on most business ordered. Heavy tonnage is being figured on engineers' boards, but it is a question whether a large proportion of this will materialize into actual orders. The tendency of billet bar dealers is to strengthen the minimum price of 2.30c. Rail steel bars are firm at 1.85c to 1.95c, Chicago.

Awards Compared

	Tons
Awards this week	9,280
Awards last week	4,380
Awards two weeks ago	6,505
Awards this week in 1927	2,700
Average weekly awards, Feb.	5,422
Average weekly awards, 1928	6,765
Total awards to date, 1927	47,180
Total awards to date, 1928	67,655

CONTRACTS PLACED

2500 tons, stock and export building for the Willys-Overland Co., Toledo, O., through the Henry J. Spieker Co., that city, general contractor, to the Building Products Co.

800 tons, Quaker City Cold Storage building, Philadelphia, to Kalman Steel Co.

750 tons, Veterans' hospital, Portland, Oreg., to Pacific Coast Steel Co.

500 tons, rail steel, Illinois road work, to unstated fabricator.

500 tons, billet steel, division B of Chicago sewage treatment works, Niles Center, Ill., to Barton Spider-Web System Inc.

325 tons, Erie railroad, piers Nos. 20 and 21, New York, to Faitoute Iron & Steel Co.

300 tons, rail steel, apartment building at 73 East Elm street, Chicago, to Calumet Steel Co.

200 tons, reconstruction of municipal pier No. 34, New York, to Faitoute Iron & Steel Co.

300 tons, billet steel, Womens' Athletic club, Chicago, to Olney J. Dean & Co. in addition to 100 tons previously placed with a different fabricator.

300 tons, rail steel, Steuben club, Chicago, to Inland Steel Co.

200 tons, army barracks, Camp Meade, Md., to Dietrich Bros.

250 tons, southern approach, Municipal bridge, St. Louis, to Missouri Rolling Mill Co.

250 tons, Jefferson-Plaza hotel, St. Louis, to Missouri Rolling Mill Co.

230 tons, Catholic school, Toledo, O., through

A. Bentley & Sons, Toledo, contractor, to Pollak Steel Co.

225 tons, Hungerford hotel, Seattle, to Pacific Coast Steel Co.

200 tons, Southern Bookbinding Co. building, Philadelphia, to Truscon Steel Co.

190 tons, school, Philadelphia, to Concrete Steel Co.

160 tons, roadwork in Indiana, to Bourne-Fuller Co.

100 tons, uptown theater, Philadelphia, to McClintic-Marshall Co.

100 tons, addition to Kenmore high school, Buffalo, to Kalman Steel Co.

100 tons, miscellaneous work, including addition to hotel at Altoona, Pa., and a small building for Erie Steel Barrel Co., Erie, Pa., to Truscon Steel Co.

100 tons, rerolled steel, filtration plant at Grafton, W. Va., to an unnamed seller.

100 tons, Killen & Wise garage, Toledo, O., through Green & Sawyer, Lima, O., general contractors, to the Building Products Co.

100 tons, apartment building at 5820 Kenmore avenue, Chicago, to Inland Steel Co.

100 tons, apartment building, Olive Way and Boren avenue, Seattle, to Pacific Coast Steel Co.

100 tons, garage, Ninth and Virginia, Seattle, and a building job at Spokane, to Northwest Steel Rolling Mills.

100 tons, work in Burlington, Vt., to Edward A. Tucker Co.

CONTRACTS PENDING

2000 tons, Rodriguez dam in lower California, Mex., general contract to Ambursen Construction Co., New York.

1220 tons, drainage system No. 22, Los Angeles; bids in April 9.

1000 tons, printing plant for R. R. Donnelly Co., Chicago; Howard Shaw, Chicago, architect.

650 tons, Lamson store addition, Toledo, O.; Henry J. Spieker Co., Toledo, awarded general contract.

500 tons, building for United Shoe Machinery Co., Federal street, Boston.

421 tons, bridge for Huntington, W. Va.; bids close March 26.

300 tons, William Penn hotel additions; sublet to Mellon-Stuart Co. by W. T. Grange Construction Co.

300 tons, high school, Austin, Ill.

300 to 600 tons, two buildings in Cleveland, O., for Sears, Roebuck & Co., Chicago; B-W Construction Co., Chicago, general contractor.

200 tons, Koppers building basements, Pittsburgh; general contract awarded Mellon-Stuart Co.

150 tons, tunnels, etc. for new steam heating plant for Allegheny Steam Heating Co., at Twelfth street, Pittsburgh; bids about to be asked.

150 tons, proposed hospital building for Presbyterian Hospital association, at Pittsburgh; E. P. Mellon, architect; in preliminary stages.

100 tons, railroad station, for Monongahela railroad at Brownsville, Pa.; bids being taken.

100 tons, Chicago sanitarium; W. C. Wallace, Chicago, architect.

100 tons, bridge at Waldwick, N. J.

100 tons, Packard Motor Car Co. building, Pittsburgh; bids being refigured.

100 tons, bars and mesh, Municipal stadium, Steubenville, O.; bids about to be asked.

100 tons, Emory Methodist Episcopal church, Pittsburgh; bids being refigured.

100 tons, bleachers, etc., athletic field Langley high school, Pittsburgh; bids being taken by Pittsburgh board of education.

Unstated tonnage, Ogden National Bank building, Chicago; K. M. Vitzhum, Chicago, architect.

Unstated tonnage, office building at 301 West Jackson boulevard, Chicago; A. S. Alschuler, architect.

Considers Plant Addition

Plans are being formulated for additions to the wide strip mills, finishing equipment and warehouse of the Columbia Steel Co., Butler, Pa., subsidiary of the American Rolling Mill Co.

Rails, Cars

Chicago District Rail Purchases Total 13,000 Tons—Car Activity Diminishes

RAIL mills continue to operate about 90 per cent in the Chicago district and above 100 per cent in Pittsburgh territory. Bookings of the week included 13,000 tons at Chicago, with track fastenings there amounting to 6000 to 7000 tons. Equipment activity was confined to various small transactions. Revisions of freight car award totals place the February figures at 9962.

RAILROAD TRACK MATERIAL PRICES, PAGE 700

New York, March 13.—Car demand in this district is slack, although rumors persist of substantial lists under contemplation by one or two of the large eastern railroads, notably the New York Central. It appears likely that this business will not develop for at least another month or so.

Domestic freight car orders for February aggregate 9962 cars, revised from first reports of 10,162, bringing the total for the first two months up to 13,862. A comparative statement follows:

	1928	1927	1926	1925
Jan.	3,900	14,710	8,830	1,695
Feb.	9,962	5,960	12,895	5,510
Total (2 mos.)	13,862	20,670	21,725	7,205
March		4,955	8,895	4,730
April		3,675	4,615	5,060
May		5,425	4,448	6,985
June		7,440	4,285	1,835
July		2,295	1,265	800
Aug.		1,181	152	2,875
Sept.		682	3,335	7,905
Oct.		886	2,840	11,145
Nov.		1,189	3,925	11,685
Dec.		14,897	8,990	16,885
Total		64,042	60,575	77,110

Pittsburgh, March 13.—Little new business is developing in light rails. Daily requirements of coal mines, lumber camps and other users are met easily by small shipments, some of which apply against contracts but more often than not represent spot buying. The price is firm at $36. Standard rail mills are operating at above 100 per cent of rated capacity.

Track accessory orders all are small and due to competition arising on the recent Pennsylvania and New York Central railroad purchase of tie plates, that market is weaker by $2 per ton, a price of 2.15c having been developed in St. Louis and Chicago, which set the pace for the rest of the makers. Standard spikes, however, are firm at 2.80c for both small and large.

Cleveland, March 13.—Akron, Canton & Youngstown railroad will buy 6000 tons of rails provided certain financing is approved by the interstate commerce commission.

Chicago, March 13.—A few lots of steel rails have been closed with Chicago mills as a part of the secondary option purchases, amounting to about 13,000 tons. Light rail business is in miscellaneous carload lots. It is expected that considerable secondary buying will be done within the next 30 to 60 days.

Sales of track fastenings for the week in this district totaled 6000 to 7000 tons. Considerable inquiry for track accessories is expected shortly from those roads buying in quarterly lots.

Rail mill operations in the district are at the rate of the past two months, or about 90 per cent.

CAR ORDERS PLACED

Chicago, Burlington & Quincy, six baggage cars and three passenger and baggage cars, to Pullman Car & Mfg. Corp.

Chicago, Rock Island & Pacific, 36 coaches, ten each to Pullman Car & Mfg. Corp. and Standard Steel Car Co. and 16 to American Car & Foundry Co.

Safety Car Heating & Lighting Co., 30 refrigerator cars, to American Car & Foundry Co.

Union Refrigerator Transit Co., 50 refrigerator cars, to American Car & Foundry Co.

LOCOMOTIVE ORDERS PLACED

Chicago & North Western, for its subsidiary, Chicago, St. Paul, Minneapolis & Omaha, eight locomotives, to American Locomotive Co.

Donner Steel Co., one oil-electric locomotive, to be built by American Locomotive Co., Ingersoll-Rand Co. and General Electric Co.

Illinois Terminal Co., one locomotive, to Baldwin Locomotive Works.

New York Central, ten locomotives, to American Locomotive Co.

Seattle, one locomotive, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Chicago & North Western, 1000 automobile cars

Detroit & Toledo Shore Line, 192 gondolas.

Illinois Central, ten suburban motor cars and ten trailers.

Bolt Plant Purchased

Chicago, March 13.—The Hammond Bolt & Nut Co., Hammond, Ind., has purchased the bolt, nut and rivet department formerly operated by the Illinois Car & Mfg. Co. The latter company has been taken over by the Standard Steel Car Co.

The bolt plant will be operated under the same management as before, M. J. McDonough being president, E. N. Joyce, vice president, M. L. Hunt treasurer, and Charles Aaron secretary.

Cotton ties will shortly be rolled by the Connors Steel Co., Birmingham, Ala., whose president, George Connors, has just returned from a trip to Florida and Cuba.

Wire

Nails Lack Activity and Strength but Other Wire Products Are Steady and Firm

BACKWARD movement of nails to consumers has backed up stocks in hands of jobbers and they are taking less from mills. Other wire products are active and manufacturers are taking good tonnages. Demand for fencing is good and spring weather is relied on to increase requirements. Prices are fairly steady, with some slight shading.

WIRE PRICES, PAGE 700

Chicago, March 13.—Shipments of wire nails to jobbers have fallen markedly from December-January rate. For the first time in a year jobbers have accumulated considerable stocks of nails. In contrast with the nail situation, the weakest spot, other wire products are active. Manufactured wire products are in good demand. Woven wire fencing is active. With favorable spring weather it is expected considerable new wire products business will appear. Despite weakness in demand for nails the price is reported holding satisfactorily at $2.70, Chicago or western mill. Bright plain wire is reported steady at 2.55c. Some producers are cutting these quotations in order to book business in their territory, but mills report the price situation improved over the latter months of 1927.

Worcester, Mass., March 13.—Shipments of steel wire and wire products about balance specifications against first quarter business. Some new business at new prices for second quarter is being written. While this volume is not large it is gradually gaining and the increase announced in January is reported paid. Mills are close to 70 per cent.

New York, March 13.—Interest in steel wire and nails is lagging. Indications are that consumers and jobbers are well stocked and are not specifying heavily nor showing anxiety about second quarter. Most current business continues at $2.65, base, Pittsburgh, for nails; 2.50c for wire.

Buffalo, March 13.—Automobile interests have made large purchases of wire for second quarter. The price has held firm at 2.50c for common wire. Buying of welded fabric also shows marked gain. Other lines are holding their own. Wireworks are being operated at fully 80 per cent.

Pittsburgh, March 13.—Manufacturers' wire tonnage is larger than requirements of jobbers. Wire users, such as nut, bolt and rivet manufacturers, are making up seasonal stocks and take good sized tonnages. Jobbers on the other hand have good stocks against spring demand. Operations averaged 60 per cent. Some are making up stocks to meet seasonal increase in demand and could possibly operate 75 per cent but are proceeding cautiously. Fence makers are encountering good demand in the South and through April this line should expand. The base price of 2.50c on plain wire is firmer than that of $2.65 on wire nails.

Detroit, March 13.—The $2.65, Cleveland, base on wire nails is being shaded $2 per ton, a condition that has been the rule instead of the exception in recent months. Other wire products are fairly firm. Shipments, especially to automotive interests, are heavier than in February. Jobbers are only fair buyers.

Bolts, Nuts, Rivets

Stove Bolts Advanced 10 Per Cent—Specifications Active

NUT AND BOLT PRICES, PAGE 700

Chicago, March 13.—Second quarter quotations for stove bolts have been advanced 10 per cent in this market in addition to recent uses in large and small structural rivets. Stove bolts are 75 off on packages and an extra 2½ off for bulk. Second quarter contracting is under way. It is estimated that specifications during first quarter represented close to 80 per cent of the contracting for that period. The probabilities are that second quarter specifications from farm implement works may not be continued at the high pace of first quarter and the finad quarter of last year. Automotive specifiations are heavier.

Pittsburgh, March 13.—Some progress is reported by makers of nuts, bolts and rivets in second quarter bookings. Operations are about 65 per cent. The nut and bolt price is firm at 70 off, and new business in rivets is taken at 2.90c.

Cleveland, March 13.—Sustained by active demand from a fairly diversified list of consumers, specifications for bolts and nuts show improvement over February and the corresponding 1927 period. Good demand comes from automotive and railroad interests. Jobbers also are placing substantial orders. Contracts for second quarter will go out to consumers carrying the current figure of 70 off. Structural rivet sellers look for better demand before March 1. when the higher contract price is effective. Specifications are light.

Philadelphia, March 13.—While bolts and nuts are firm at unchanged discounts and contracting for second quarter is being done at these levels, rivets are weak. In some cases rivet contracts have been booked at 2.75c, Pittsburgh, or less, but generally 2.90c is the price.

Strip Steel

Second Quarter Business Bringing Better Prices Than First

STRIP PRICES, PAGE 700

Pittsburgh, March 13.—Strip steel makers are contracting for second quarter and several report they have been able to obtain 3.15c. Many customers tried to develop 3.00c. The maximums of the hot strip schedule are obtainable on prompt business in small lots. Operations vary between 75 and 85 per cent.

New York, March 13.—Specifications for strip steel on first quarter contracts are considerably better. This is particularly true since the price situation is firmer than in some time, and it seems unlikely that consumers will be able to get as low prices for second quarter. Hot strip at present is firm at 2.20c, base, Pittsburgh, for less than 3 inches, 2.10c for 3 to 6 inches and 1.90c for 6 to 12 inches. Widths 12 inches and wider generally are being sold at the blue annealed price of 2.10c, base, Pittsburgh. In a number of cases prices lower than the above have been withdrawn. The cold rolled strip market continues to reflect the firmer tone which recently developed and prices range from 3.15c, base, Pittsburgh, on lots of less than three tons to 2.90c on large lots.

Chicago, March 13.—Hot rolled strip steel specifications, which have been heavy the past two months, continue. Hot rolled strip steel quotations are 2.30c to 2.50c for material under 3 inches; 2.20c to 2.30c for 3 to 6-inch material, and 2.00c to 2.10c for material 6 to 12 inches. For material 12 to 24 inches the 1.95c plate base is used.

Cleveland, March 13.—Strip steel specifications in the past few days have shown no change from the rate of the previous week. Hot strip continues in better demand than cold. Second quarter contracting is slow in developing, although some of the largest consumers are under cover. Hot strip prices continue firm for spot or contract at 1.90c to 2.00c, Pittsburgh, for 6 to 12-inch; 2.00c to 2.10c for 3 to 6-inch, and 2.20c to 2.40c for under 3-inch. Cold strip is steady at 2.90c and 3.15c, Cleveland.

Cold Finished Steel

Second Quarter Contracts Being Taken At a Concession

COLD FINISHED PRICES, PAGE 700

Pittsburgh, March 13.—Following the lead of a Youngstown district cold bar finisher, the trade here is

(*Concluded on Page* 715)

Nonferrous Metals

Higher Prices Are Quoted on Copper, Lead and Zinc as More Activity Develops—Tin Sinks to Lowest Level in Several Years

Prices of the Week, Cents a Pound

	Copper: Electro delivered	Copper: Lake delivered	Copper: Casting refinery	Straits Tin: New York Spot	Straits Tin: May	Lead: New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Mar. 7	14.10	14.25	13.75	51.50	51.50	6.00	5.80	5.52½	23.90	10.37½	35.00
Mar. 8	14.12½	14.25	13.75	51.50	51.50	6.00	5.80	5.57½	23.90	10.50	35.00
Mar. 9	14.12½	14.25	13.75	51.37½	51.37½	6.05	5.82½	5.62½	23.90	10.50	35.00
Mar. 12	14.12½	14.25	13.75	50.87½	50.87½	6.07½	5.82½	5.65	23.90	10.37½	35.00
Mar. 13	14.12½	14.25	13.85	50.25	50.12½	6.05	5.82½	5.67½	23.90	10.37½	35.00

NEW YORK, March 13.—The nonferrous metal markets are more active than in a number of weeks. Buying is for prompt and April shipment and in a few instances for more distant positions. Prices of copper, lead and zinc have strengthened, but tin is lower, while aluminum and nickel are unchanged.

Brass and copper mill products are unchanged, all on the basis of 14.00c for copper, except copper wire, which is on the basis of 14.12½c. Shipments of products except wire are large but old orders are well filled, and it is believed more buying is about to be done, especially with the encouragement of firmer copper.

Copper—Metal offered at lower prices was taken up several days ago, and since then the market has been firm at 14.12½c, Connecticut, the price at which most large producers have been holding for many weeks. Some metal has sold at this figure but not a great deal. Business also has been done at 14.25c, Midwest. Users appear to be well covered for March but it is believed more buying remains to be done for April. Export business also picked up this past week, while the price remained unchanged at 14.50c, c.i.f., Europe. Little change in the statistical position was reported at the end of February, although shipments of refined metal were very large and topped output. Stocks of refined copper were cut as a result but a gain in blister stocks offset the drop in refined metal.

Zinc—Prime western metal has strengthened more than ⅛-cent in the past week. Some business was done but a reaction from extremely low ore prices also was an important force. Stronger statistics came out over the week-end and also encouraged producers. Stocks were cut in February 846 tons, a small cut, but it was the first cut in several months. Moreover, shipments were slightly above the monthly average and larger than in any other February. Output showed little change on a daily basis.

Tin—The price fell below 51.00c to the lowest for several years. This happened with moderate business, cheerful industrial news and a strong stock market. But sellers have been more desirous of doing business than users after several days of quietness with slight fluctuations. Shipments from the Far East continue heavy. Use here has improved but not sufficiently to be impressive. Some business is being done for arrival as late as September.

Aluminum—Business is light and of routine nature for early shipment. Prices of ingot are steady but prices of sheet were cut slightly.

Lead—The market is stronger and more active than in some time. Some premium prices are quoted above the ruling level of 6.00c, New York. Users now appear to be well covered for March and are interested mostly in April.—*Daily Metal Trade.*

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	18.75
Copper, hot rolled	22.75
Lead, full sheets (cut ¼c more)	9.75
Zinc (100-pound base)	9.50
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBES	
Yellow brass (high)	23.62½
Copper	24.50
RODS	
Yellow brass (high, full turning)	16.50
Naval brass	19.25
WIRE	
Copper, small lots	15.62½
Yellow brass (high)	19.25

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.25
Chicago	9.25 to 9.50
Cleveland	9.25 to 9.50
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.25 to 7.50
ZINC	
New York	3.50
Cleveland	3.00 to 3.25
HEAVY COPPER AND WIRE	
New York	11.50 to 11.75
Boston	10.75 to 11.25
Chicago	10.50 to 11.00
Cleveland	11.50 to 11.75
RED BRASS BORINGS	
New York	8.25 to 8.50
YELLOW BRASS TUBING	
Cleveland	7.50
LIGHT COPPER	
New York	10.00 to 10.25
Chicago	9.50 to 9.75
Cleveland	10.00 to 10.25
LIGHT BRASS	
Boston	5.75 to 6.00
Chicago	6.25 to 6.75
Cleveland	5.50 to 5.75
ALUMINUM	
Clippings, Cleveland	17.50
Borings, Cleveland	9.50
Cast, Cleveland	13.00
Cast, Boston	11.50 to 12.00

Secondary Metals

Remelt Aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	12.25 to 12.50

Coke By-Products

Most Distillate Quotations Are Giving Ground—Sulphate Holds

New York, March 13.—Distillate prices are easier. Pure and 90 per cent benzols are now offered at 22 cents a pound in tanks and 27 cents in drums. Commercial xylol is now 30 cents, works, in tanks, and 35 cents, in drums. Solvent naphtha is 30 cents, works, in tanks, with some shading. In drums, commercial xylol is 35 cents, works. Toluol, however, is firm at 35 cents, works, in tanks, and 40 cents, in drums.

Demand for most products is moderate to good, but accumulation of coke reserves as a result of a light winter is said to be indirectly having a depressing effect on practically all distillates except toluol, which is in heavy demand, particularly from the varnish and lacquer manufacturers. Naphthalene is steady, with the tendency slightly upward.

Sulphate of ammonia is in good spot demand, with the market holding at $2.35, delivered. Moderate sales for delivery in May are reported.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.22	.....
90 per cent benzol	0.22	.....
Toluol	0.35	.....
Solvent naphtha	0.30	.....
Commercial xylol	0.30	.....
Phenol	0.19 to 0.20	.....
Per pound at Producers' Plants		
Naphthalene flakes	0.05 to 0.05½	
Naphthalene balls	0.06 to 0.06½	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.35	

Quicksilver $121 to $123

New York, March 13.—Quicksilver business is fair and the price is steady, about $121 to $123 a flask.

Warehouse

Demand Steadily Forging Upward as Spring Stimulates Building Operations—Foreign Bars Limit New York Jobber Sales

ALL warehousing centers report maintained or steadily increasing sales. March volume for the first third of the month generally is ahead of the same period in February. Prices are steady. European steel bars are making inroads into New York warehouse sales.

Cleveland warehouse business continues at a good rate. February was the heaviest month in three years for one jobber. Interest shown during February is attributed largely to the inability of regular mill purchasers to get quick service. Several good orders have been received lately by jobbers of cold-finished material for use in the electrical industry.

Warehouse business in the Detroit district has improved noticeably, especially in the volume per order. Automotive interests are better buyers, while contractors and builders reflect a moderate revival in building. The daily rate of orders in March shows a gain over February. Prices generally are steady. Lump sum quantity differentials applied by the mills is diverting some business to warehouses.

Jobbing demand in the New York metropolitan district is being sustained at a good rate, with prices generally steady. Most jobbers look for little change in the near future, notwithstanding advances in certain mill products. Foreign steel, largely merchant bars, continues to make inroads into the business of domestic jobbers.

Fair movement from Boston warehouses continues without developing any price changes. The situation generally is regarded as better than at the same time a year ago.

Buffalo warehouses report spring business slow in reaching its expected volume. Total sales this year are running slightly behind those of the like period of 1927.

St. Louis distributors report satisfactory conditions. Movement of building materials is showing seasonal improvement, with purchasing in the South particularly good from the agricultural trade.

Pittsburgh warehouse operators see no marked improvement in demand, the spring trade not having opened up. March buying so far is comparable to February to the same date. Prices are firm except on sheets.

Philadelphia jobbers report recent price advances firmly maintained. Quantity differentials on steel bars continue observed generally. Demand is in smaller volume than it was in February.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.40c
New York	3.24c
Philadelphia*	2.50c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

*Plus quantity differentials.

IRON BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York	2.80c to 3.24c
Philadelphia*	2.50c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

*Plus quantity differentials.

REINFORCING BARS

Baltimore	2.60c to 3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
*Los Angeles	3.05c
**Los Angeles	3.30c
New York	2.95c
Philadelphia	2.40c to 2.90c
Pittsburgh	2.90c to 3.175c
*San Francisco	2.85c
**San Francisco	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

*Carload. **Less carload.

STRUCTURAL SHAPES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Houston	3.25c
Los Angeles	3.40c
New York	3.34c
Philadelphia	2.40c to 2.80c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.40c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.40c to 2.80c
Phila., 3/16-in.	2.60c to 3.00c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

No. 10 BLUE ANNEALED SHEETS

Baltimore	3.10c to 3.66c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.50c
Ft. Worth	4.70c
Houston	3.90c
Los Angeles	3.85c
New York	3.79c to 3.89c
Portland	4.00c
Philadelphia	3.15c
*Pittsburgh	3.10c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

*Price on 25 or more sheets.

No. 24 BLACK SHEETS

Baltimore	3.60c to 4.30c
Boston	5.00c
Buffalo	4.20c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.10c
New York	4.10c
Philadelphia	4.15c
Pittsburgh†	3.75c
Portland	4.90c
San Francisco	4.95c
Seattle	5.00c
St. Louis	4.45c
St. Paul	3.95c
Tulsa	4.75c

†Price on 10 to 24 bundles.

No. 24 GALVANIZED SHEETS

Baltimore	4.30c to 5.45c
Boston	5.85c
Buffalo	5.05c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.60c
Detroit	4.90c
Ft. Worth	5.75c
Houston	5.30c
Los Angeles	5.30c
New York	4.70c
Philadelphia	5.00c
Pittsburgh†	4.60c
Portland	5.65c
San Francisco	5.50c
Seattle	5.75c
St. Louis	5.25c
St. Paul	4.90c
Tulsa	5.55c

†Price on 10 to 24 bundles.

BANDS

Baltimore	3.25c to 4.06c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Houston	3.65c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.35c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York	4.49c
Philadelphia	3.60c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons	Flats squares
Baltimore	3.25c	3.75c
Boston	3.45c	3.95c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	3.40c	3.90c
Philadelphia	3.35c	3.85c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c*	.....
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500-lb. lots	5.30c
Buffalo	5.85c
Chicago*	6.10c
Cincinnati	7.15c
Cleveland *	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia	5.00c†

*Net base, straightening, cutting, boxing one ton or more.

†Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c

Flats and Squares

Baltimore, New York, Phila.	6.60c

Coast Buying Steady

Tanks, Pipe, Penstocks Furnish Tonnage—Imports of Year Are Tabulated

SAN FRANCISCO, March 10.—(*By Air Mail*)—Trading in most lines of steel products continues fair for this season. Important awards include 4000 tons of shapes for underframes for 2000 Pacific Fruit Express refrigerator cars and 620 tons of plates for two 80,000-barrel tanks. Possibly the largest cast iron pipe inquiry ever to develop on the Coast is now out for figures. This involves 25,000 tons of 50, 56 and 60-inch for the Sequoia and Wildcat canyon aqueducts of the East Bay municipal utility district at Oakland, bids on which go in April 20.

Importations of foreign steel products the past year were as follows:

	Tons
Pig iron	17,673
Coke	55,707
Bars	37,220
Shapes	34,029
Cast iron pipe	37,563
Tubular products	39,167

British Indies sent 10,769 tons of pig iron, Germany 32,179 tons of coke, Belgium 22,558 tons of bars, Belgium 24,812 tons of shapes, France 21,874 tons of cast pipe and Germany 21,027 tons of tubular products. San Francisco foundries took the largest portion of pig iron, 8770 tons, and the largest tonnage of coke, 26,803 tons. Bar imports at San Francisco aggregated 14,463 tons and shape imports 20,123 tons. Los Angeles took 23,824 tons of cast iron pipe and 31,296 tons of tubular products.

Pig Iron and Coke

Movement of foundry pig iron and coke was restricted this week to small lots and few inquiries of importance are up. No change in prices are noted.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00
*Dutch	24.50

*C.i.f. duty paid.

Bars, Plates and Shapes

Awards of reinforcing bars this week totaled over 2000 tons and brought the aggregate for the year to 18,517 tons, compared with 10,869 tons for the corresponding period in 1927. An award is expected to be made next week on 1950 tons for Pier 48 and 100 tons for an esplanade at San Francisco. New inquiries include 1220 tons for drainage district No. 23 at Los Angeles and 100 tons for the Panama canal. Demand for merchant bars is limited to small lots, seldom in excess of a carload.

The only plate award of note this week called for 620 tons for two 80,000-barrel tanks for the Western Oil Co., Los Angeles, booked by the Western Pipe & Steel Co. Fabricators and mill representatives are keenly interested in the inquiry for 8000 for the Oakland aqueducts. Alternate bids are to be taken on cast iron, concrete steel-lined, welded steel and lock-bar pipe. The Puget Sound Machinery Depot was low on the 2000-Seattle penstock. Awards thus far this year total 6294 tons, compared with 9566 tons for the same period last year. Prices are firm at 2.30c c.i.f.

Other important structurals awards, in addition to the 4000 tons reported above, include 300 tons for an apartment in San Francisco. Awards this week were the second heaviest of the year and totaled 6617 tons, bringing the aggregate for the year to 33,952 tons, compared with 44,072 tons for the corresponding period in 1927.

Other Finished Material

The largest cast iron pipe award of the week involved 420 tons for Tucson, Ariz. So far this year 16,241 tons have been placed, compared with 17,653 tons for the same period last year. Santa Ana, Calif., and Aberdeen, Wash., are in the market for 500 and 170 tons, respectively. The United States Cast Iron Pipe & Foundry Co. are low bidders on 663 tons for Santa Barbara, Calif. Standard pipe lettings were confined to small lots. New inquiries include 360 tons of 8-inch steel pipe for Los Angeles, bids on which go in March 13. The Santa Fe Pipe & Supply Co. is low on 100 tons of 6 and 8-inch standard pipe for Monrovia, Calif.

Seattle Shipyard

Being Planned—Market Is Steady—Pipe Lines Take Tonnage

Seattle, March 7.—According to reports a steel yard for the construction of small vessels is soon to be established here. It is understood that a former executive of the old Seattle Construction & Dry Dock Co. is organizing a company which has a tentative site selected. Since the dismantling of the Todd Dry Dock & Construction Co., at Tacoma several years ago, there has been no steel ship plant on Puget Sound, although Todd Dry Docks, Inc., at Seattle has facilities for major ship repair jobs.

The market continues firm with a steady demand for steel. Many major projects are still in embryo and considerable tonnage is pending. Mill prices of merchant bars and shapes continue unchanged at 2.35c, while plates are firm at 2.30c. The feature of the week is the firming of reinforcing material to 2.20c, following a long period during which keen competition between the two producing interests here forced prices to 2.00c and under. A large tonnage of concrete business is pending as contractors are still trying to get lower prices, not yet having adjusted themselves to the higher level. The two local steel mills are operating steadily and have considerable work on their books.

Awards of reinforcing materials this week totaled nearly 1200 tons as follows: 750 tons for the Veterans hospital at Portland, 225 tons for the Hungerford hotel, Seattle, and 100 tons for an apartment at Olive way and Boren avenue to the Pacific Coast Steel Co. The Northwest Steel Rolling Mills booked 100 tons for a garage at Ninth and Virginia streets, Seattle, and in a building project at Spokane.

Birchfield Boiler Works, Tacoma, obtained the contract for a steel pipe line at Tacoma involving slightly more than 1000 tons. Considerable plate tonnage is pending, including 2050 tons, for a Seattle pipe line, bids for which are under consideration. Everett, Wash., will open bids March 12 for a pipe line job involving 200 tons of plates. Contract for remodeling the steel steamer IROQUOIS was awarded to the Lake Washington shipyard. This work involves about 400 tons of plates and shapes. The Albina Marine Iron Works, Portland, Oreg., has a $500,000 job from the government for the construction of three lightships. The tonnage of steel involved is unstated.

No awards of more than 100 tons were reported in the structural market this week. However, several large sized projects are pending. Seattle will vote March 13 on bond issues for the construction of two large bridges. Bids will be opened at Denver, April 10 by the bureau of reclamation for the fabrication and erection of the riveted steel siphons in the Kittitas project, Washington. About 500 tons of steel will be required.

Finished Materials

Wholesale jobbers report trade spotty, the aggregate being less than expected at this season. Improved demand from agricultural sections is expected soon. Sheets are in fair demand but there is no marked movement of any one item. Jobbing prices are unchanged.

Representatives of cast iron pipe manufacturers report business slow. No large inquiries are in the market. Several small jobs are pending at Seattle, the general contracts having been awarded but the pipe not yet placed. One job at Tacoma, involving 188 tons, is also pending.

The Doehler Die Casting Co. is operating its plant at Batavia, N. Y., for the first time at capacity.

Forms Institute

Gray Iron Foundry Industry Organizes at Pittsburgh Meeting

Pittsburgh, March 13.—Organization of the American Gray Iron institute was launched here today at a meeting attended by more than 50 interested in the gray iron foundry industry, including 46 invited delegates from 14 states, held at the Carnegie Institute of Technology. The resolution creating the institute was adopted unanimously.

The nominating committee consisting of Walter Wood, of R. D. Wood & Co., Philadelphia; D. K. Bartlett, Builders' Iron Foundry, Providence, R. I.; B. H. Johnson, Cresson-Morris Co., Philadelphia, R. M. Ensign, Ensign Foundry Co., Toledo, O., and William Bonfleth, Cream City Foundry, Milwaukee, selected the following 15 foundrymen as the organization committee which will formulate plans for a permanent organization and report at the Philadelphia meeting of the American Foundrymen's association in May:

A. E. Hageboeck, Moline, Ill.; Don McDaniel, Hamilton, O.; Walter Seelbach, Cleveland; H. H. Chafee, Providence; B. H. Johnson, Philadelphia; J. L. Carter, Newark, N. J.; W. J. Grebe, Milwaukee; Edward B. Sherwin, Chicago; Fred Erb, Detroit; Mr. Hinds, Syracuse, N. Y.; J. H. Bruce, Cleveland; Horace Cullings, St. Louis; John Hartman, Tacoma, Wash.; Charles R. Law, Mansfield, La.; and J. D. Coleman, Bridgeport, Conn. Alternates are A. E. Clark, DesPlaines, Ill., and Angus McDonald, New York.

A resolution presented by Walter Seelbach and seconded by Robert Crawford, Detroit, provides "that an organization be formed consisting exclusively of those engaged in the production of gray iron castings, an organization to be known as the American Gray Iron institute or some other name equally as good and impressive and dignified."

B. H. Johnson presided as chairman of the meeting and Dan M. Avey, editor, *The Foundry*, served as secretary. A. F. Jensen, president, Hanna Engineering Works, Chicago, spoke briefly of the rivalry of materials and products and emphasized the desirability of creating a consciousness for gray iron.

A. J. Tuscany, secretary, Ohio State Foundrymen's association, Cleveland, gave data showing what other industries are doing to promote markets. J. L. Carter, president, Newark Foundrymen's association, read a paper by Dr. Richard Moldenke, subject, "Technical Research." C. E. Hoyt, secretary, American Foundrymen's association, approved in principle the general purpose of the new organization. Among others who discussed organization were J. T. Mackenzie, American Cast Iron Pipe & Foundry Company, Birmingham, Ala.; William H. Barr, president, National Founders' association; A. E. Custer Jr., Philadelphia; Philip Frankel, Cleveland; and John Hartman, Tacoma, Wash.

Cold Finished Steel

(*Concluded from Page* 711)

accepting contracts for second quarter at 2.20c, or $2 under the figure that had been previously announced for that period. The trade expects the market soon will revert to 2.30c on spot buying. Considerable tonnage already has been booked for second quarter. While specifications against first quarter contracts have been fairly liberal considerable material still is to be taken out and now because prices are unchanged much tonnage may be carried over. Consumption is fairly high by automotive and allied lines, and small orders are furnished by other consumers. Operations are 75 to 80 per cent.

Cleveland, March 13.—Action of a small independent producer of cold finished steel bars in naming 2.25c, Cleveland, for second quarter, has depressed the market. Consumers who had been negotiating for second quarter contracts at 2.25c, in face of a spot price of 2.35c, which was being reaffirmed for contract tonnage, have relapsed into inactivity. Specifications against present contracts continue heavy, however, inasmuch as some of the larger consumers were covered at quotations below the present level. Cold drawn alloy bar makers have not taken action as yet in realigning their second quarter cards with the new bases on hot-rolled alloy bars.

Merger of Youngstown and Inland Off

Youngstown, O., March 13.—The March 15 stockholders' meeting of the Youngstown Sheet & Tube Co., originally called to ratify the merger with the Inland Steel Co., Chicago, will be held as scheduled but instead the merger will be disapproved.

This action follows a conference at Cleveland, March 7, when officials of the Youngstown and Inland companies agreed to disagree. It was announced that "the parties have been unable to agree on certain important features of the proposed merger and the merger, therefore, will be abandoned."

Whether the Youngstown company will proceed to develop additional steelmaking and finishing capacities in the Chicago district is not stated.

A rumor which finds credence in some quarters is that interests associated with the Inland company were purchasing sufficient Youngstown company stock to give them control of the merged companies.

Pig Iron Shipments Heavy

(*Concluded from Page* 701)

barge and rail. Furnace stocks of charcoal iron are heavy, but it is understood all sellers now are holding to $24, base, furnace. The price of $18.50 continues steady for No. 2 foundry and malleable. The recent short selling of small lots at 25 to 50 cents under that figure apparently had no effect on the market.

Cincinnati, March 13.—The Marmon Motor Co., Indianapolis, is inquiring for 3000 tons of malleable for second quarter. Servel Inc., Evansville, Ind., is in the market for 1000 to 1500 tons of malleable for second quarter. The Parkersburg Rig & Reel Co. ordered 500 tons of foundry iron from a local interest. The Lunkenheimer Co. also placed 300 tons. Prices are steady. Lake furnaces are trying to obtain $17.50, base, furnace, in this district, although $17 still is quoted on some business.

St. Louis, March 13.—While sales of pig iron have decreased slightly shipments continue at a high rate. Malleable shops are active, reporting a fair volume of business from the automotive industry. Sales totaled 3500 tons, of which 3100 tons were booked by St. Louis Gas & Coke Corp. The largest single sale was 1000 tons to an Illinois equipment manufacturer. Prices are unchanged.

Birmingham, Ala., March 13.—Pig iron shipments are more active. Production is unchanged, ten blast furnaces producing foundry iron; six, basic, and one a special brand. The price still is $16, base, Birmingham. None of the larger melters of iron has bought a round tonnage for second quarter. Many consumers of iron are reporting good business. Pipe making has increased.

Philadelphia, March 13.—An eastern Pennsylvania steel mill bought several thousand tons of basic iron in the past week. A pipemaker placed an order for several thousand tons of foundry iron. Ten thousand tons of pipe iron was sold in Virginia. The past week's sales in this district included another lot of Buffalo foundry iron for third quarter, shipment by barge to Jersey City and trans-shipment there for rail delivery to an eastern Pennsylvania point. This order was placed below the eastern Pennsylvania price level. Eastern Pennsylvania furnaces continue to quote $20, base, furnace. The American Radiator Co. bought 2000 tons for its Gloucester City, N. J., plant to be delivered by barge, partly from Buffalo and the remainder from an eastern tidewater point.

A complete list of important points to which the $4.91 freight rate on pig iron from Buffalo has been restored includes Reading, Kutstown, Emaus, Macungie, Allentown, Pottsville, Bethlehem, Birdsboro, Hamburg and Topton, Pa. These points about 18 months ago were put on a $4.41 rate from Buffalo, but the old $4.91 figure has been revived.

Sheet & Tube Earnings Less in 1927

Earnings of the Youngstown Sheet & Tube Co. for 1927 were less than one-half of those of the preceding year, due to unfavorable conditions in the iron and steel industry and in the oil industry. The annual report of the company, just made public by President J. A. Campbell, shows consolidated net income of $7,023,334, after interest, depreciation, depletion and federal taxes. This compares with $15,148,876 in 1926.

During the year the company expended $8,879,727 for new construction, improvement of equipment and other capital investments. There is now under construction a new boiler and power plant at the Campbell works and new coke ovens at the South Chicago works, which together with other improvements, will require a capital expenditure of $12,500,000. The company expects production costs to be materially reduced by the new improvements.

"During the year we put into operation our new tin mill at our Indiana Harbor works and one seamless tube mill at our Campbell works," says President Campbell. "Having gone through the preliminary stages of development of these two units, we believe we can now state that they are on a basis where they can be considered as efficient and will be valuable additions to the properties."

The comparative income account follows:

	1927	1926
Net operating profit	$21,058,415	$29,977,168
Other income	1,864,850	3,161,839
Total income	$22,923,264	$33,139,007
Depreciation and depletion	9,782,459	*1,088,721
Depreciation	.....	8,077,912
Special expenses and charges	1,998,536	2,326,318
Interest & discount, etc.	4,118,935	4,327,180
Federal taxes	.....	2,170,000
Net income	$7,023,334	$15,148,876

*For depletion only.

Wheeling Steel Profits Decline in 1927

Net profits of the Wheeling Steel Corp. for the year ended Dec. 31, 1927, were $4,028,916 after all charges. This compares with the net of $5,006,460 reported for 1926. The net surplus of the company increased in the year from $9,863,745 to $11,040,063, according to the annual report just made public.

During the year the company's average number of employes was 15,593, against 17,249 in 1926. The total pay rolls were $27,756,135, compared with $31,433,262 in the preceding year. The volume of sales was $72,596,950, compared with $83,427,942 in 1926. The year's production record showed an output of 1,147,867 gross tons of ingots and of 821,215 gross tons of pig iron, compared with 1,242,971 gross tons of ingots and 709,950 gross tons of pig iron in 1926.

The company spent $3,855,025 in 1927 for betterment of property in addition to ordinary repairs and maintenance. The report, signed by President Isaac M. Scott and Chairman Alexander Glass, says that the outlook for 1928 is reasonably encouraging. The comparative income account follows:

	1927	1926
Operating profit	$8,690,568	$9,870,339
Other income	830,530	741,782
Total profits	9,521,098	10,612,121
Depreciation, exhaustion	3,432,195	3,291,884
Interest, federal taxes	2,058,987	2,313,777
Net profits	4,028,916	5,006,460
Dividends	2,852,598	3,051,488
Surplus	1,176,316	1,954,972
Total surplus	11,040,063	9,863,745

Sheet Price Expose Wins Editorial Award

Washington, March 13.—An article published last April by *Daily Metal Trade*, a Penton Publication, on the unsound price situation in the sheet metal industry won honorable mention for this paper when the first annual awards for editorial achievement by members of the Associated Business Papers Inc., New York, were made Monday at the National Conference of Business Paper Editors. W. S. Doxsey is editor of *Daily Metal Trade*.

H. L. Southal, editor of *Hardware & Metal*, published by the McLean Publishing Co., Toronto, Ont., was presented with a $500 prize for an article exposing rebating to oil companies.

Will Install New Mills

Officials of the Sheffield Steel Corp., Kansas City, Mo. have authorized the construction of a blooming mill, a billet mill, a combination rod and bar mill, wiremaking equipment, a fourth open-hearth furnace and additions to the bolt and nut department for completion this year. The continuous billet and combination rod and bar mills will be built by the Morgan Construction Co., Worcester, Mass. Contracts for the blooming mill and wire equipment will be awarded soon. A bond issue and the offering of preferred stock with a combined total of $3,000,000 is included in the financing program to cover the cost of the plant enlargement.

Place Alloy Steel Prices on Uniform Base

Cleveland, March 13.—Complete revision of the hot rolled alloy steel prices has been made by leading makers. A definite price of 2.65c, Pittsburgh or Chicago, has been adopted as the base for alloy quality bars, from which the various net prices will be computed through addition of fixed alloy differentials. These range from 20 cents per 100 pounds on S.A.E. 5100 chrome spring to $3.80 on 3300.

Makers believe that the open adoption of a fixed base price will tend to eliminate some of the ruthless price cutting which has marked the alloy industry in recent years. New extras for size, cutting, etc. are under contemplation by several companies, but no definite list has been announced. The revisions of the price list include few marked changes.

Demand for alloy steels from the automotive industry has improved, and in this district automotive parts makers are releasing increased specifications.

American Rolling Mill Earnings Lower

American Rolling Mill Co. and subsidiary companies, exclusive of Columbia Steel Co. and Norton Iron Works Inc., acquired during 1927, for year ended Dec. 31, 1927, shows net income of $3,748,164 after interest, depreciation and federal taxes.

This is equivalent after allowing for annual dividend requirements on the 6 per cent cumulative preferred stock (old issue) and 7 per cent cumulative preferred stock, to $2.98 a share earned on outstanding 980,914 shares of common stock.

This compares with $4,064,050 or $3.49 a share on 925,527 common shares outstanding in 1926, a decrease of $315,486 or 7.77 per cent.

Otis Steel Makes New February Record

Net profits of the Otis Steel Co. in 1927 were $1,382,879 after all charges, including estimated federal taxes, compared with $1,907,314 in 1926. The ratio of current assets to liabilities Dec. 31 was 3.88 to 1, compared with 3.41 to 1 the year before. The company has increased its net current assets $1,035,318 since 1924. A new February record was made by Otis when shipments totaled $2,749,601. This compares with $2,712,654 for the 31-day month of January.

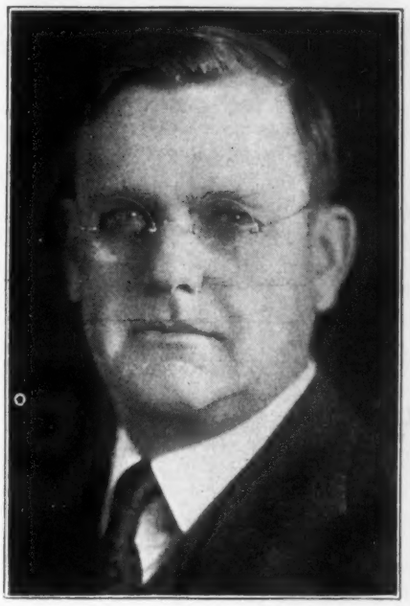
Industrial Men in the Day's News

William H. Davey, President of Recently-Formed Empire Steel Corp.

EXPERIENCE gained during 38 years spent in the sheet steel industry in all phases from mill worker to chief executive has fitted him admirably for the responsible position he now holds.

WITH his brothers, who have displayed unswerving loyalty to him, he has contributed much to the progress of the industry.

HIS favorite recreation is business and in the many years of his identification with the trade, he seldom has taken a vacation of lengthy duration.



PREPARED by a busy lifetime of practical experience gained in the sheet mill and matured later in the executive's chair of a successful independent sheetmaking company, William Henry Davey recently acquired the duties of president of the newly-formed Empire Steel Corp., Mansfield, O. This is the organization into which have been merged the properties of Mansfield Sheet & Tin Plate Co., Ashtabula Steel Sheet Co., Waddell Steel Co., Falcon Steel Co., Thomas Sheet Steel Co. and Empire Steel Co., all independent producers in northeastern Ohio. The Empire corporation is the outgrowth of several years of patient negotiation under adverse circumstances finally overcome by skillful diplomacy, largely that of Mr. Davey.

From his early youth, Mr. Davey set out to learn the steel sheet business; and he has learned it from the ground up. Born at Briton's Ferry in South Wales, on May 6, 1873, his first experience in a rolling mill came when as a lad he was employed by the Hawkwell Tin Plate Works at Gloucester, Eng.

When he was 16 years old, Mr. Davey, with his father and several of his brothers, came to this country. Joining the United States Iron & Tin Plate Mfg. Co. when E. R. Crawford was secretary, now the McKeesport Tin Plate Co., McKeesport, Pa., the young man spent five years there and became the first mill superintendent of the McKeesport company. Then he decided to gain broader experience as well as to see the country, and he worked in various middle western sheet mills under many noted managers. He was a roller in the Struthers, O., sheet mill when it was a Steel corporation subsidiary with Charles S. Thomas as mill superintendent; also in the Youngstown Iron & Steel Roofing Co. under L. E. Cochran and John O. Pew; again with the Youngstown Sheet & Tube Co. under James A. Campbell, and in several of the Niles mills which now form parts of the new Empire corporation.

Determining to settle down, he became general superintendent of the McClure Tin Plate Co. at Washington, Pa., now the Washington Tin Plate Co. Later he was named general superintendent of the Carnahan Sheet & Tin Plate Co. at Canton, O. After serving for some time as vice president and general manager of the Massillon Rolling Mill Co. at Massillon, O., he associated himself with the late R. E. Bebb in building the Central Steel Co. at Massillon in 1913. In November, 1914, he became president of the National Rolling Mill Co. at Mansfield, O., and immediately he reorganized it into the Mansfield Sheet & Tin Plate Co.

Under his direction and skillful management, the Mansfield plant has been expanded to its present important position, open hearths and blooming mill being added until it became the nucleus around which the present sheet merger has been built. Associated with him in his Mansfield development have been his seven brothers, now reduced to six by the death in 1918 of the oldest, Thomas. Those remaining are Albert, Samuel, Harold, John, Austin and James—each taking some important part in the work of making the Mansfield plant a success. They rally around their dynamic and untiring brother "Will," as they know him, with the most unswerving loyalty. In fact, the loyalty of the Davey brothers is one of the most unusual features of the American sheet steel trade to whose progress they all have contributed much.

Mr. Davey's favorite recreation is business. In all of his years in the industry, he has been away from his office but seldom. He is married and lives in Mansfield.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

FRED S. POWER, general manager of the St. Paul Foundry Co., St. Paul, has been elected president, succeeding his father, Charles M. Power, whose death was announced in IRON TRADE REVIEW March 1. Mr. Power has been elected treasurer also, succeeding George I. Ashton, who continues as secretary.

* * *

E. W. Thomas of A. C. Allyn & Co., investment house, has been made a director of the Foote Bros. Gear & Machine Co., both of Chicago.

* * *

Herbert L. Pratt, president of the Standard Oil Co. of New York, has been elected a director of the American Can Co., New York, succeeding R. L. Skofield.

* * *

D. K. Swartwout Sr., president, the Swartwout Co., manufacturer of steam specialties, ventilators, etc., Cleveland, sailed March 3 for a vacation in the West Indies.

* * *

Henry D. Sharpe, Brown & Sharpe Mfg. Co., Providence, R. I., manufacturer of machine tools and equipment, has been elected vice president and director of the Providence Gas Co., that city.

* * *

William A. O'Connell, sales manager at Detroit for the former Thomas Sheet Steel Co., Niles, O., is now attached to the Detroit office of the company into which it merged, the Empire Steel Corp., Mansfield, O.

* * *

A. C. Good has been elected purchasing agent of the Hill Clutch Machine & Foundry Co., Cleveland, succeeding C. H. Kathe, whose resignation was noted in IRON TRADE REVIEW March 1.

* * *

W. H. Lynch, district engineer, bureau of public works, at Omaha, Nebr., has been named to succeed C. H. Purcell in a similar capacity at Portland, Oreg. Mr. Purcell has been appointed chief highway engineer for the state of California.

* * *

T. F. Scannell, at one time with the Chain Belt Co., Milwaukee, has been made representative in the St. Louis territory of the Magnetic Mfg. Co., Milwaukee, handling the complete line of magnetic separation equipment, magnetic clutches for power equipment, etc.

* * *

Samuel Megeath, director and chairman of the board of the American Steel Export Co., New York, has returned from a trip to Europe.

* * *

Samuel Insull Jr. has been elected a director of Commonwealth Edison Co., Chicago, to succeed the late Watson F. Blair.

* * *

John McArdle, formerly with Chrysler Corp., Detroit, and later with Murray Body Corp., has been elected a vice president of Jordan Motor Car Co., Cleveland.

A. F. England has been elected secretary and treasurer of the Jordan company.

* * *

Fred E. Wilhelm, with the sales department of the Judson Mfg. Co., San Francisco, from 1919 to the early part of this year has joined the sales organization of the Pacific Coast Steel Co. with headquarters in its San Francisco office in the Hunter-Dulin building.

* * *

George R. McClure, formerly purchasing agent of American Rolling Mill Co., Middletown, O., and later Chattanooga, Tenn., representative of Ashland Fire Brick Co., Ashland, Ky., has been transferred to the main office of the Fire Brick company, to cover the Ohio territory.

* * *

William J. Chapin, formerly combustion engineer with Peoples Gas Light & Coke Co., Chicago, and more recently with the Eclipse Fuel Engineering Co., Rockford, Ill., has joined the Chicago Steel Foundry Co., Chicago, and is in charge of engineering and sales of the heat resisting products.

* * *

Charles A. Boultman has been appointed manager of the supply division in the sales department of Pangborn Corp., Hagerstown, Md., manufacturer of sandblast and dust collecting equipment. Mr. Boultman, formerly with the Carborundum Co., Niagara Falls, N. Y., and the E. A. Kinsey Co., Cincinnati, will have charge of abrasive and supply service for sandblast users.

Grant Davis, formerly advertising manager of the Marion Steam Shovel Co., Marion, O., has become associated with the Pangborn corporation as manager of the advertising division.

* * *

C. J. Walters, with Lamson & Sessions Co., Cleveland, for 21 years, the past eight spent as assistant sales manager, has become associated with his brother Cornelius G. Walters in the Master Products Co., Cleveland, manufacturer of punch press products. Cornelius Walters is secretary of the Master Products Co.

* * *

J. S. Gore, formerly assistant sales manager at the home office of the St. Louis Gas & Coke Corp., St. Louis, has been appointed sales manager, succeeding Walter Underwood, resigned. The sales office in Chicago has been discontinued. Mr. Gore has been connected with the St. Louis corporation for about five years. He was at one time with Domhoff & Joyce Co., Chicago.

* * *

D. L. Gregory, superintendent of the Massillon Bridge & Structural Co., Massillon, O., has been appointed general manager. Mr. Gregory succeeds Elton Rice, for many years both president and general manager and who continues in the office of president. Mr. Gregory formerly was superintendent and assistant general manager, retaining the duties of the former position in his new capacity.

* * *

Harvey Nathaniel Davis, professor of mechanical engineering at Harvard university, Cambridge, Mass., since 1916, has been elected president of Stevens Institute of Technology, Hoboken, N. J., succeeding the late Alexander C. Humphreys, who resigned Sept. 23, after serving for 25 years. Born in Providence, R. I., in 1881, Dr. Davis was graduated with distinction at Brown university. He has been an engineer in the turbine department of the General Electric Co., Schenectady, N. Y., aeronautical mechanical engineer in the United

States air service, consulting engineer in the bureau of mines and in the Franklin Railway Supply Co. and the Air Reduction Co. He is a member of the American Society of Mechanical Engineers, a fellow of the American Academy of Arts and Sciences and is affiliated with numerous other scientific and engineering organizations.

* * *

S. E. Fairchild Jr., chairman of the Cruse-Kemper Co., Ambler, Pa., manufacturer of gas condensers, etc., has returned from a trip abroad.

* * *

D. T. Rosenfeld has been appointed chief engineer of the Standard Tank Car Co., Sharon, Pa., succeeding R. W. Thompson, whose advancement was noted in IRON TRADE REVIEW last week.

* * *

J. Vance Wilson, associated with the chemical laboratories of the National Tube Co., National works, McKeesport, Pa., has been appointed chief chemist at the Page Steel & Wire Co., Monessen, Pa.

* * *

Elmer Gripe has been appointed Chicago district manager of the Baltimore Tube Co., Baltimore, succeeding W. E. Bargar, who was transferred to one of the eastern offices, as noted in IRON TRADE REVIEW, March 1.

* * *

Harold Strouse, advertising manager of the Harnischfeger Corp., Milwaukee, builder of cranes, etc., has been elected president of the Milwaukee Association of Industrial Advertisers, succeeding the late Howard A. Winton, formerly advertising manager and later sales manager of the Heil Co., Milwaukee.

* * *

Charles L. Allen, president and general manager of the Norton Co., Worcester, Mass., manufacturer of abrasives, was surprised by 400 employes of the company on its seventieth birthday anniversary, March 6, and was presented with a statuette, "The Scout." Mr. Allen has been general manager of the Norton Co. for 43 years.

LeChatelier Is Honored

On Feb. 28, Charles M. Schwab presented to Prof. Henry Le Chatelier, French chemist, a medal and certificate of honorary membership in the American Society of Mechanical Engineers. The presentation was made at a luncheon given by Ambassador Herrick in the American Embassy. The honors were conferred upon Professor Le Chatelier for his introduction of new methods of physio-chemical analysis which now are considered indispensable in all metalworking establishments. Among the luncheon guests were Marshall Foch, Count De Jean, the Brazilian Ambassador and officers of the principal scientific societies of Paris.

Concrete Form Trade Is Asked to Meet

Washington, March 13.—Manufacturers, distributors and consumers interested in form dimensions for concrete ribbed floor construction are being asked by the division of simplified practice, department of commerce, to attend a meeting March 21 at Biloxi, Miss., in connection with simplification. This meeting will be held during the convention of the Concrete Reinforcing Steel institute. A preliminary session was held last fall at Detroit.

Elects New Officers

At the annual meeting of the American Management association conducted at the Hotel Roosevelt, New York, Feb. 6-10, the chief topics of discussion were the application of present production methods to general office work in manufacturing establishments and the importance of teaching executives how to teach others. Officers for the coming year have been elected as follows:

President, C. S. Ching, supervisor of industrial relations, United States Rubber Co., New York; vice president financial division, H. A. Fountain, treasurer, Ohio Public Service Co., Cleveland; vice president marketing executive division, George R. Cain, advertising department, Swift & Co., Chicago; vice president office executives division, Henry W. Cook, vice president, North Western National Life Insurance Co., New York; vice president production executive division, Oscar Grothe, vice president, White Sewing Machine Co., Cleveland; vice president at large, C. R. Dooley, manager of personnel, Standard Oil Co. of New Jersey, New York; president institute of management, Harry A. Hopf, Harry A. Hopf & Co., New York; treasurer, John C. Orcutt, vice president, American Exchange Irving Trust Co., New York. W. J. Donald, managing director of the association, was reappointed.

Profits of the Dominion Engineering Co., Montreal, Que., in 1927 were $675,062 compared with $758,646 in 1926.

Steel Treating Lectures Prove Popular

Statistics just compiled by the American Society for Steel Treating reveal that 1211 persons representing 197 companies were enrolled in the special extension course on iron and steel conducted by the society last fall. Prof. John F. Keller, on leave from Purdue university, was in charge of the course consisting of six weekly lectures before ten groups in various cities.

Of the enrollment, 23.3 per cent consisted of shopmen, 21.3 per cent was foremen, 13.1 per cent was superintendents and 13 per cent was engineers. The three companies furnishing the heaviest enrollment were the Wisconsin Steel Co., Chicago, with 129; National Cash Register Co., Dayton, O., with 83; and Illinois Steel Co., Chicago, with 52. Similar groups probably will be organized next fall, provided there is a demand from a sufficient number of cities and that Professor Keller again is available.

Inland Steel Co. Net Shows Decline

Consolidated net income of the Inland Steel Co. for 1927 was $6,806,894, after all charges, according to the pamphlet report just issued by the company. This compares with $7,147,704 reported in 1926. The comparative income statement follows:

	1927	1926
Net earnings	$11,342,054	$11,180,782
Depreciation, depletion, etc.	2,508,252	2,080,911
Federal taxes	994,000	892,000
Bond interest	674,908	703,167
Employes pension fund	358,000	357,000
Net income	$6,806,894	$7,147,704
Preferred dividends	700,000	700,000
Common dividends	2,956,997	2,956,997
Surplus	$3,149,897	$3,490,707

Production Index Gains

Washington, March 13.—January iron and steel production index number was 130, compared with 106 in December and 126 in January, 1927, taking 1919 as 100 per cent, according to the department of commerce.

January production index number for "other metals" was 139, compared with 129 for December and 160 last January. Unfilled orders index for January for iron and steel was 89, compared with 85 for December and 80 for January, 1927, taking 1923-1925 as 100.

Westfield Silica Co., Westfield, Wis., has been made defendant in involuntary bankruptcy.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

SUPERIOR MOTORS CO., Chicago, is planning to move its plant to Muskegon, Mich. A two-story plant has been acquired with sufficient space for regular progress from raw material to finished product. The company will produce all the metal parts used by the Brunswick-Balke-Collender Co., Chicago. The plant capacity will be 800 motors, tone arms and reproducers per day. Equipment of the plant is all new and of latest design. Joseph Spring is general manager. He was one of the original members of the American Society for Steel Treating. All steel used in motors and other products is to special specification, heat treated and hardened.

* * *

MUEHLHAUSEN SPRING CO., 5841 Loomis street, Chicago, has moved its general offices to the company's new plant at Logansport, Ind.

* * *

AMERICAN BUILDERS is a newly-formed firm at Kenosha, Wis., which will manufacture a new metal inlay of letters and name plates. K. Hovingh is president.

* * *

WHITCOMB WHEEL CO., Kenosha, Wis., manufacturer of wheels for automotive vehicles, has started construction of automobile buses of its own design, of the six-wheel type.

* * *

RACINE SCREW CO., Racine, Wis., lost its plant and equipment by fire recently. Pending adjustment of insurance no plans have been made for rebuilding the plant.

* * *

BARNES ZINC PRODUCTS CO., 1531 Kingsbury street, Chicago, has changed its name to the Barnes Metal Products Co. The company manufactures conductor pipe, eaves trough and fittings.

* * *

CENTRAL TOOL & DIE CO., 429 River sreet, Lansing, Mich., has taken over the plant and business of the Hull Machine & Tool Co. of that city. The plant has been completely re-equipped to do tool and die work for the automotive trade.

* * *

UNITED COAL & DOCK CO., Milwaukee, is establishing a coal briquet manufacturing plant, to cost $250,000, at First avenue and Canal street. The plant will have capacity of 40 tons per hour. It is planned to be in operation next fall.

* * *

ALLIS-CHALMERS MFG. CO., Milwaukee, has established representation in New England through E. D. Hill, at 42 Church street, New Haven, Conn. Sales will be under direction of A. F. Rolf, manager of the company's New York office, 50 Church street.

* * *

VINGREN PATTERN WORKS, Kenosha, Wis., has been formed recently to manufacture metal and wood patterns. H. Vingren, president of the company, has been in the pattern trade for over 20 years, with Crane Co., Chicago, and the Nash Motors Co., Kenosha.

* * *

BEN KORAL CO., Chicago, has been organized to manufacture automotive accessories and hardware specialties. Leased quarters will be used for the present, with a plant planned for the future. Ben J. Koral is president, John M. Rosenberg vice president and Otto Koral secretary and treasurer.

* * *

MATTHEW MOODY & SONS CO., LTD., Montreal, Que., manufacturer of agricultural implements, has been given Canadian rights to manufacture aluminum automobile pistons, by the Aluminum Industries Inc., Cincinnati. Castings will be sent from Cincinnati and finished at the Montreal plant.

* * *

MONROE ARMATURE WORKS, Monroe, La., recently formed, will deal in and repair electrical equipment. The company is in the market for a coil former and a small bench lathe. Donald MacKenzie is president, W. E. Hinkley vice president and M. S. Harrison secretary-treasurer.

* * *

PINES WINTERFRONT CO., Chicago, has bought a controlling interest in the Detroit Motor Appliance Co., a patent-holding corporation owning patents on built-in shutters. This is said to give the Pines company ownership of all patents on automatic and hand-operated radiator shutters of the built-in type.

* * *

HARRISON STEEL CASTINGS CO., Attica, Ind., has been formed to take over the National Car Coupler Co. Officers of the new company are: President, J. W. Harrison; vice president and general manager, R. J. Harrison; secretary and sales manager, G. W. Harrison; treasurer, W. C. Harrison.

* * *

AMERICAN STEEL BOAT CORP., Boston, has been organized to build steel pleasure boats from a new design eliminating frames. An assembling plant will be maintained at first, with parts purchased in the market. George E. Gilbert is president, George Alexander treasurer and Wilder B. Harris, secretary.

* * *

ERIE CITY IRON WORKS, Erie, Pa., has opened a direct sales office at 122 South Michigan avenue, Chicago, in charge of Charles B. Acheson, district manager. J. R. LeVally is special engineer and D. F. Lytle is sales representative. A sub-office in the Chicago territory has been opened at 511 Tractional Terminal building, Indianapolis, in charge of E. J. Clerget.

* * *

GOETZ BRASS CO., 630 North Franklin street, Chicago, manufacturer of bath, shower and lavatory fixtures, and special brass products, has been authorized to change its corporate name to H. E. Robertson Co. The new name was adopted due to a change of ownership, H. E. Robertson now being president and general manager. A. H. Green is secretary-treasurer. The Goetz company was organized 50 years ago.

* * *

FORT WAYNE FURNACE AND SHEET METAL CONTRACTORS elected J. W. Loney to a third term as president of the association. Charles E. Tharp was elected to his third term as secretary. Other officers elected are: Vice president, William C. Huguenard; treasurer, Edwin D. Albright; trustee for three years, Carl Miller; for two years, William H. Carter; for one year, C. C. Sieb. Ed-

win D. Albright succeeds Joseph Frieberger as treasurer.

* * *

CRAWFORD STEEL CO., Chicago, has moved to larger quarters at 4930 Bloomingdale avenue.

* * *

S & S. MACHINE WORKS, 4541 West Lake street, Chicago, is adding a second story to its plant, adding much to its productive capacity.

* * *

HATFIELD ELECTRIC CO. has moved its office at Cleveland from the Keith building to 1326 Terminal Tower building.

* * *

BOSE-BROOKS PATTERN WORKS, 482 Market street, Milwaukee, has been started recently for the manufacture of wood and metal patterns, by H. A. Bose and W. A. Brooks.

* * *

PULMOSAN SAFETY EQUIPMENT CORP., Brooklyn, N. Y., has moved its offices and plant to Greater Industrial Building No. 1, 176 Johnson street.

* * *

GENERAL MOTORS CORP. has bought the former Durant plant at Muncie, Ind., and will convert it into a storage battery manufacturing plant.

* * *

COOLEY MFG. CO., 530 North Western avenue, Chicago, manufacturer of wire goods, is specializing in contracts for special wire products in quantities. Its equipment covers all classes of wire goods production.

* * *

ROCK ISLAND BRIDGE & IRON WORKS, Rock Island, Ill., has reelected its officers, as follows: President, Walter A. Rosenfeld; vice president, Edward Manhard; secretary, W. G. Murphy; treasurer, M. S. Carlson.

* * *

MILTON MFG. CO., Milton, Pa., which has been in the hands of receivers for some time, has been reorganized and receivers have been discharged by the court. Stock conversion is under way and the new organization will be in full control by March 15.

* * *

RUST ENGINEERING CO., Pittsburgh, has taken a contract from the American Mond Nickel Co. for a batch type in and out billet reheating furnace for its plant at Hyde, Pa. It will be used to reheat nickel billets 4 x 4 inches, five feet long for rolling to rods and shapes.

* * *

CUTTER ELECTRICAL & MFG. CO., Philadelphia, manufacturer of circuit breakers and other electrical equipment, has changed its name to I-T-E Circuit Breaker Co. The firm has been in existence under the former name for 40 years and the change was made to avoid conflict with others of similar name.

* * *

FOX BROS. INTERNATIONAL CORP., New York, has been given a contract by the Turkish government for construction of 750 miles of railroad and two large port terminals, at a cost of about $60,000,000. Fox Bros. are negotiating for four cranes of 25 and 5 tons and two of 3 tons. Much other equipment will be bought in this country.

* * *

NATIONAL CARBON CO. Inc., carbon sales division, has moved its branch sales office factory from 357 West Thirty-sixth street, New York, to larger quarters in the company's plant at Fourteenth and Henderson streets, Jersey City. The new plant gives double the former space and considerable equipment has been added to increase production of brushes and carbon products.

* * *

KERNER AUTOMATIC HOIST CO., Milwaukee, has been formed to take over the business of the Milwaukee Hoist Co., manufacturer of automatic hoisting devices for handling building supplies. The new concern is affiliated with the Kerner Incinerator Co. Mackey Wells, president of the latter, heads the new company, and Theodore and Herbert Zetterlund, founders of the Milwaukee Hoist Co., are directors.

* * *

BANTAM BALL BEARING CO., Bantam, Conn., is building a plant at South Bend, Ind., and shortly will move its equipment and business there. The change is to take the plant closer to the automotive industry, which uses much of its products. W. W. Gager, Waterbury, Conn., is vice president of the company. It was organized 20 years ago and its present plant at Bantam was built ten years ago.

* * *

SHAW CRANE-PUTNAM MACHINE CO. INC., owned by Manning, Maxwell & Moore Inc., has bought the line of sheet metal machines manufactured by the Lamb & Nash Co., Boston. Production of these machines will be carried on at the Putnam Works, Fitchburg, Mass.

* * *

BARTLETT HAYWARD CO., founder and engineer, Baltimore, has elected Howard Bruce chairman of the board on his resignation as president. Howell Fisher, first vice president and general manager, has been elected president, and Albert C. Bruce has been elected a vice president. Other officers were re-electd. Mr. Bruce had been president for 18 years and Mr. Fisher vice president for 12 years. The change was to make official titles of officers conform more nearly to their activities.

* * *

FREYN ENGINEERING CO., Chicago, has received orders for its type of pressure burners for blast furnace stoves from the Sharon Steel Hoop Co., Sharon, Pa., and Republic Iron & Steel Co., Youngstown, O. The burners are motor driven and of unit or integral type. Each will have automatic control of blower speed to supply correct air for the gas available. For the latter installation a large burner with capacity for 14,000 cubic feet of gas per minute will be installed.

* * *

COMBUSTIONEER INC., 570 West Randolph street, Chicago, manufacturer of automatic coal burners, has been organized recently by interests formerly connected with the Iron Fireman Corp. of Chicago. A stoker of new design has been developed, using the underfeed principle, with provision for supplying fuel evenly over the grate. It is designed for heating and power purposes. The company includes Ray C. Goddard, W. F. Megeath and W. S. Burke, all formerly connected with the Iron Fireman Corp. of Chicago.

* * *

SUPERIOR CULVERT & FLUME MFG. CO., 2440 East Fifteenth street, Los Angeles, has been incorporated and has acquired manufacturing and distributing rights in California, Nevada, Utah, Arizona and New Mexico for culverts manufactured by the Central Alloy Steel Corp., Massillon, O. The company also will manufacture culverts from copper-bearing steel sheets. A plant of this company is now in operation at Oakland, Calif., and a plant at Los Angeles will be in operation by April 1. Plants will be established at Salt Lake City, Utah, and Phoenix, Ariz. J. E. Webster, president of the new company, is general manager of the Ducommun Corp., Los Angeles, a position he has occupied several years.

Index Is Ready

THE index to Volume 81 *of* IRON TRADE REVIEW, *covering the last six months of* 1927 *now is ready for distribution. Copies will be sent to all subscribers desiring them.*

E. B. Fish is vice president, John A. Lambie, secretary and manager, and Oliver P. Stewart treasurer. The latter three are officers of the West Coast Pipe & Steel Co., Los Angeles.

Hot Flat Rolled Steel Institute Formed

Pittsburgh, March 13.—The National Association of Flat Rolled Steel Products Manufacturers is formally the successor to the National Association of Sheet and Tin Plate Manufacturers, the Hot Rolled Strip Steel institute and the Cold Rolled Strip Steel institute.

George H. Charls, former commissioner of the Hot Rolled institute, is president of the new association. The two vice presidents are E. T. Sproull, former commissioner of the Cold Rolled institute, and A. N. Flora, former vice president of the Trumbull Steel Co.

Walter Lower, former secretary of the Sheet and Tin Plate body, is secretary and treasurer, serving also in that capacity for the Sheet Steel Extension committee.

The Hot and Cold Rolled association offices at Canton, O., are being consolidated, while the Sheet and Tin Plate and the Sheet Steel Extension offices will be moved from Pittsburgh to Cleveland shortly.

Would Increase Canadian Iron, Steel Duties

Toronto, Ont., March 13.—Efforts to obtain greater tariff protection for the iron and steel industry and induce the Canadian government to grant assistance to Canadian blast furnaces to enable them to make more extensive use of Canadian iron ore probably will be pressed at this session of the Canadian parliament. In a recent address T. E. Simpson, conservative member for West Algoma, Ont., declared that the Canadian iron and steel industry is less protected now because duties are specific instead of *ad valorem*.

He also cited the disadvantages resulting from high freight rates. From Buffalo to Chatham, Ont., the rate on bars and shapes is 26½ cents per 100 pounds while the rate from Sault Ste. Marie, Ont., is 41½ cents. The present tariff protection on shapes of 15 cents per 100 pounds, on sections weighing 35 pounds per yard is nullified by increased transportation costs. Buffalo can ship pig iron to St. Catherines, Ont., for $2.30 per gross ton, while the rate from Sault Ste. Marie is $4.90. The present tariff of $2.80 per ton is all but offset by the $2.60 increased freight from the Canadian producers.

According to Mr. Simpson, if adequate tariff protection is granted, the Algoma Steel Corp., Sault Ste. Marie, will complete a structural mill, to roll angles and beams larger than 6 inches and channels above 7 inches at a cost of $10,000,000.

Only minor changes, chiefly downward, in the tariff are included in the budget presented to the house of commons by the finance minister last week.

Steelcraft Engineering Co., Marion, Ind., has increased capital from $50,000 to $100,000.

Seven Firms Join Metal Trades Association

Seven additional firms have been accepted as members of the National Metal Trades association. They are: Eaton Axle & Spring Co., axle, spring and bumper divisions, Cleveland; Phil R. Hinkley, Cleveland; Buell Die & Machine Co., Detroit; Dixie Machinery Mfg. Co., St. Louis; Nichols & Shepard Co., Battle Creek, Mich.; United Accounting Machine Co., and Red Jacket Mfg. Co., Davenport, Ia.

Employment in shops represented by the association increased from 585,494 in December to 598,653 in January, according to its latest monthly labor barometer.

Obituaries

CHARLES D. MASON, 54, secretary of the Cleveland-Cliffs Iron Co., Cleveland, died at his home in Lakewood, O., March 6. He had been connected with the Cleveland-Cliffs company for 26 years and had been secretary two years. He was appointed auditor of the company in 1918. Mr. Mason was a native of Chicago.

* * *

George W. Dick, 73, founder of the George W. Dick Plating Works, Indianapolis, died recently at his home.

* * *

John J. Foley, division installation superintendent of the Western Electric Co. for Ohio, Indiana and Michigan, died March 7 in Cleveland.

* * *

Charles D. Smith, 52, plant manager of Dowsley Spring & Axle Co., Chatham, Ont., died Feb. 27. He was born in Gananoque and had resided in Chatham 19 years.

* * *

William Boyce Edgar, 84, until his retirement from active business ten years ago, secretary of the Edgar Zinc Co., St. Louis, died at his home there, last week.

* * *

W. A. Marty, 49, manager of the General Motors Corp. steering gear plant at Saginaw, Mich., died at his home there March 7. Prior to going to Saginaw, he had been connected with the Hudson, Studebaker and Ford automobile companies.

* * *

Lazard Kahn, 77, president of the Estate Stove Co., Hamilton, O., died at his home in Cincinnati, March 7. Mr. Kahn was a chevalier of the Legion of Honor of France, having been decorated for his work in the Paris international exposition in 1900.

* * *

Howard B. Sherman, 58, Battle Creek, Mich., manufacturer and founder of the American Stamping Co. there, died at his winter home in Miami Beach, Fla., March 8. Mr. Sherman also had organized a plant at Hastings, Mich. for the manufacture of pressing machinery.

* * *

William W. Hanlon 70, a pioneer in the St. Louis steel industry, died at his home in that city recently. Mr. Hanlon was general superintendent of the Granite City Steel Co., the steel subsidiary of the National Enameling & Stamping Co., vice president of the Granite City National bank, and president of the Western Fire Brick Co., Granite City, Ill.

* * *

Jonathan Dixon Maxwell, pioneer automobile manufacturer, died at his home in Worton, Md., March 8. Mr. Maxwell, born in Indiana in 1864, was one of the three men who built the machine preserved in the Smithsonian institute, Washington, believed to have been the first automobile. After a partnership with Elmer Apperson, in Kokomo, Ind., in a bicycle repair shop, Mr. Maxwell perfected, with R. E. Olds, the first Oldsmobile. For some time, he was vice president of the United States Motors Co., retiring from the automobile business about 15 years ago. The Maxwell automobile was originated and manufactured by the company of which Mr. Maxwell was president.

European Exports Are Heavier

German Steelworks Operating Near Capacity, Despite Sporadic Labor Difficulties
—Entente Continues Production Quotas on First Quarter Basis—
British Steel Output Shows Substantial Increase

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, March 13.—(*By Cable*)—The European steel entente has decided to continue production quotas as at present, on a total annual basis of 29,287,000 tons. Concessions have been granted producers in Czechoslovakia in regard to penalties that were imposed for exceeding their quota.

Demand for British ship plates is active and constructional works in the Midland district also are busy. Exports are improving. Steel shipments from the Middlesbrough district to Argentina in February amounted to 17,000 tons, against 17,750 tons, the total amount of British exports to that country in February, 1927. Pig iron exports from Middlesbrough in February totaled 7465 tons compared with 7087 tons in January.

Good orders for tin plate are being received by British mills. The pig iron market is unsatisfactory from the standpoint of British makers, especially as regards demand for hematite.

Pig iron production in Great Britain in February amounted to 545,000 tons compared with 560,500 tons in January. The number of blast furnaces in operation at the close of February was 144, four less than on Jan. 31. Steel output in February is estimated at 745,000 tons, against 626,200 tons in January.

German works are operating near capacity, according to a report from Berlin. Export demand is increasing. Sporadic labor troubles are expected as numerous agreements are expiring. The French domestic market shows more activity than in recent weeks.

Continental Prices Aid British Export Sales

LONDON, Feb. 24.—(*European Staff Service*)—There is some activity in the iron and steel export markets, as shown by inquiries. Actual transactions are somewhat limited, owing to high prices. Makers on the continent are, however, maintaining quotations at the present level because they are well booked with orders and deliveries are extended well into the year. It is beginning to be realized that continental export prices have definitely advanced.

The pig iron situation in Great Britain has improved. Continental foundry pig iron at £3 3s ($15.30) f.o.b. Antwerp is no longer competitive in this country, where the domestic product sells at £3 5s, equivalent to $15.80.

In fact, sales of British iron recently have been made to France and Belgium; these orders, however, were for special grades, but exceeded 2000 tons in the past two weeks. British steelmakers are receiving some inquiries, especially from the Far East, but demand generally is quiet. British works have an advantage over the long periods of delivery given by continental mills. Good sheet orders recently have been received by British makers. Belgian and French merchant bars could be obtained in the Birmingham district at £6 10s ($31.50) delivered, but with the months delivery.

On the Brussels market it is noted that prices are rising, mostly because many works are fully booked, but a

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, March 12	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$15.86	3 5 0*	$15.62	3 4 0	$15.62	3 4 0	$15.62	3 4 0
Basic	.....	.....	14.64	3 0 0	14.64	3 0 0	15.37	3 3 0
Basic-bessemer	17.10	3 10 0†	14.64	3 0 0	14.64	3 0 0	14.64	3 0 0
Hematite, Phosphorus 0.02-0.05	17.10	3 10 0	22.11	562.5*	.....	.....	17.10	3 10 0
SEMIFINISHED STEEL								
Billets	$28.06	5 15 0	$23.06	4 14 6	$23.06	4 14 6	$22.69	4 13 0
Wire rods	47.58	9 15 0	27.45	5 12 6	27.45	5 12 6	27.08	5 11 0
FINISHED STEEL								
Standard rails	$37.82	7 15 0	$31.11	6 7 6	$31.11	6 7 6	$31.11	6 7 6
Merchant bars	1.58c	7 5 0	1.18c	5 7 0	1.18c	5 7 0	1.18c	5 7 0
Structural shapes	1.61c	7 7 6	1.05c	4 15 0	1.05c	4 15 0	1.03c	4 13 0
Plates, ship, bridge and tank	1.77c	8 2 6	1.38c	6 5 0	1.38c	6 5 0	1.38c	6 5 0
Sheets, black, 24 gage	2.40c	11 0 0	2.34c	10 12 6	2.34c	10 12 6	2.86c	13 0 0
Sheets, galvanized, 24 gage, corrugated	2.94c	13 10 0	3.30c	15 0 0	3.25c	14 15 0	3.74c	17 0 0
Bands and strips	2.83c	10 10 0	1.35c	6 3 0	1.35c	6 3 0	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.54c	7 0 0	1.54c	7 0 0	1.57c	7 3 0
Galvanized wire, base	2.94c	13 10 0	1.98c	9 0 0	1.98c	9 0 0	2.01c	9 3 0
Wire nails, base	2.51c	11 10 0	1.62c	7 7 6	1.62c	7 7 6	1.67c	7 12 0
Tin plate, base box 108 pounds	$ 4.39	0 18 0	.....	.....	.....	.....	$ 6.83	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$15.86	3 5 0	$17.49	445(2)	$16.46	590	$18.65	78
Basic pig iron	.....	.....	18.86	480(1)	15.48	555	21.04	88
Furnace coke	2.93	0 12 0	5.90	150	5.16	185	5.14	21.50
Billets	28.06	5 15 0	21.22	540	22.32	800	27.50	115
Standard rails	1.74c	8 0 0	1.36c	755	1.43c	1100	1.51c	140
Merchant bars	1.63c	7 10 0	1.18c	655	1.23c	945	1.48c	137
Shapes	1.72c	7 17 6	1.12c	620	1.20c	925	1.45c	134
Plates, ship, bridge and tank	1.88c	8 12 6‡	1.36c	755	1.57c	1,210	1.65c	153
Sheets, black, 24 gage	2.51c	11 10 0	2.60c	1,445	2.41c	1,050	2.38c	220
Sheets, galvanized 24 gage, corrugated	2.94c	13 10 0	3.29c	1,825	3.67c	2,825	3.78c	350
Plain wire	2.11c	9 15 0	1.71c	950	1.82c	1,400	2.32c	215
Bands and Strips	2.29c	10 10 0	1.38c	765	1.61c	1,240	1.71c	158

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 0d ($2.93) f. o. b. Ferromanganese £20 10s 0d ($100.04) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s Od ($73.20) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

few orders have undoubtedly been taken at lower quotations, and although £5 7s 6d ($26) has been demanded for bars, actual business was done around £5 6s ($25.60). Inquiries are coming from South America, and there has been a reawakening of demand from China. French competition has considerably subsided as French makers are well booked and home demand is satisfactory. Furthermore, French domestic prices are slightly more remunerative to the producer than export prices, a difference of 30 francs ($1.15) per ton being noted for steel bars.

Germany is reported to have reappeared on export markets. German foundry pig iron has been sold at £3 3s 6d ($15.40) f.o.b. Rotterdam. For merchant bars German quotations are about the same as in France and Belgium, and little tonnage is exported, but German beams are well below the price of the western competitors. It is reported that the Skoda works at Pilsen, Czechoslovakia, have been awarded a contract for the erection and equipment of an electric plant in Shanghai.

Form Dutch Ore Firm

London, Feb. 18 — (*European Staff Service*)—It is reported from Amsterdam that a new company, the Hollandsche Metallurgische Bedrijven Co., has been formed, with the cooperation of the N. V. Billiton Mij., the Hague, with a working capital of 2,580,000 florins ($1,030,000). The object of the company is to transact business as ore merchants and founders. The N. V. Erts Mij. Mineralia, Amsterdam, has been entrusted with the agency for Holland of the new concern for buying ores and selling the products of the company.

Change Raw Steel Quota

Berlin, Feb. 20.—(*European Staff Service*)—Quotas of members of the raw steel syndicate in Germany have been modified as from January, and are given for each member-firm in the appended table, in metric tons. The quota of the Vereinigte Stahlwerke has been reduced by about 144,000 tons, whereas the quota of Krupp has been increased by 132,400 tons. The quotas of Hoesch, Kloeckner, the Upper Silesian works, Maximilianhutte, and Borsig also have been increased by from 30,000 to 60,000 tons.

Vereinigte Stahlwerke	6,690,818
Fried. Krupp	1,792,085
Gutehoffnungshutte	1,080,542
Hoesch	897,647
Kloeckner	893,203
Central German steelworks	646,714
Ilseder Hutte Peiner Walzwerk	570,074
Oberschlesische Eisenindustrie et Oberschlesicher Eisenbahn Dedarf	412,000
Tubes Mannesmann	404,879
Storch et Schoeneberg (Mannesmann)	106,000
Friedrichshutte (Thyssen)	84,000
Ge'sweider Eischwerke (Thyssen-Kloeckner)	150,797
Roechling	495,000
Maximilianshutte (Roechling)	387,776
Henschel und Sohn	218,308
Rhein'sche Metallwaren- und Maschinenfabrik	87,532
Saechsische Gusstahlwerke Doehlen	150,000
Eisenhuttenwerk Thale	104,357
Borsig	185,900
Rothe Erde (Arbed)	215,321
Burbach (Arbed)	503,000
Deutsche Edelstahlwerke	93,975
Press- und Walzwerk	88,200
Deutsche Stahl- und Walzwerk	120,000

French Coke Is Record

Paris, Feb. 20.—(*European Staff Service*)—Production of coke at French colliery ovens during 1927 was the highest production recorded to date. Imports of coke included 3,416,910 tons from Germany, 830,992 tons from Belgium and Luxemburg 469,927 tons from Holland, 2623 tons from Great Britain and 1481 tons from the United States. The following table gives monthly figures for the year 1927 compared with the monthly averages of 1927, the three preceding years and 1913, in metric tons:

Mon. ave	Production	Imports	Exports
1913	335,620	255,835	17,085
1924	220,765	350,160	42,330
1925	255,410	419,410	39,440
1926	313,950	462,915	39,320
1927			
Jan.	348,957	528,861	15,608
Feb.	312,525	431,972	22,363
March	344,101	394,187	30,753
April	331,237	388,781	22,519
May	336,740	426,314	32,792
June	336,029	396,953	35,547
July	343,769	194,994	43,296
August	330,385	457,980	39,588
September	332,244	368,663	56,128
October	350,380	394,829	41,332
November	341,309	406,813	32,916
December	348,224	356,622	28,326
Total, 1927	4,068,208	4,746,969	401,166

British Export Prices Under Year Ago

London, Feb. 18 — (*European Staff Service*)—Board of trade returns for January give the average British export prices per gross ton for certain iron and steel products. These prices are compiled from actual contracts which were made several months ago, and this accounts for the difference between these quotations and the base prices regularly quoted in our columns.

Compared with those prevailing in January, 1927, prices this year were lower, with the exception of beams. The price of foundry pig iron was £1 4s 8d ($6) less than a year ago. Beams were 18s 9d ($4.55) more than in January, 1927. Rails were £12 14s 7d ($61.75) less than a year ago. Plates were 18s 5d ($4.45) less than in January, 1927. Black sheets were £2 9s 3d ($11.95) less than a year ago. Galvanized sheets were £2 18s 8d ($14.20) less than in January, 1927, and tin plates were £2 17s 5d ($13.90) less than a year ago.

January, 1928

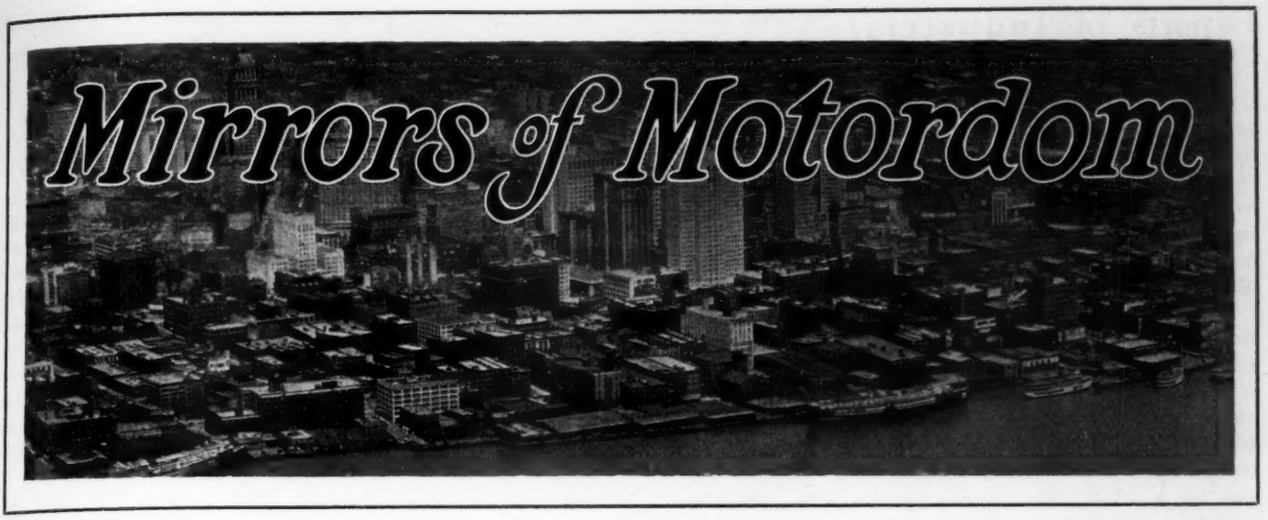
	£	s	d	$
Foundry pig iron	4	0	9	19.60
Beams	9	12	9	46.75
Rails	8	7	5	40.60
Plates	10	6	9	50.15
Black sheets under ⅛-inch thick	12	2	9	58.85
Galvanized sheets	15	13	4	76.00
Tin plates	20	1	7	97.40

Belgian Steel Prices Limit Buying

BRUSSELS, Feb. 24.—(*European Staff Service*)—Improvement in the Belgian iron and steel market continues, and a further rise has been noted in merchant bars, which at this week's meeting of the Brussels iron and steel exchange were quoted 2s 6d (60.00c) higher than a week previously. However, buyers are beginning to refrain from purchasing at the higher prices. It is noted that present quotations bring prices nearly to the level of British domestic prices, and offer little attraction for British buyers. The fact that a large number of works no longer quote for semifinished steel has forced some small fabricating industries to close. It is practically impossible to obtain any semifinished steel either on the French or the Belgian market. It is noted that the menace of a lockout in Germany has had practically no effect on the market, as the possibility that this lockout would not materialize was already discounted. Belgian works are operating to capacity, and in certain cases there is a disposition to increase output in the rolling mills. Foreign buyers have not been discouraged by recent higher prices, and inquiries have been noted from Shanghai and Hong Kong. Orders are being received from Japan, India, and Argentine, but it is believed these are taken at slightly under official prices. It is reported that the Ougrée-Marihaye concern intends to absorb the Société de Tuyauteries Trefileries et Constructions de Kuyobrock, a producer of wire nails, tubes and galvanized products.

Franc—2.78c

Pig iron prices are nominal, as French works consume their own pig iron and the Belgians are, for the greater part, out of the market. It is believed, however, that foundry pig iron would bring about £3 2s ($15). Semifinished steel prices are firm and 2-inch billets range from £4 12s 6d to £4 14s ($22.40 to $22.75). Blooms range from £4 3s to £4 7s ($20.10 to $21.10), and sheet bars are quoted at £4 15s ($23). In merchant bars many mills are out of the market, particularly Providence and Ougrée. Transactions are scarce as offers are restricted and buyers find prices too high. The Hainaut works are reported to have quoted £5 7s 6d ($26) per ton. Beams are quoted at £4 14s ($22.85) for normal profiles and £4 15s ($23.05) for British sections. The price of £5 10s ($26.75) has been fixed uniformly for wire rod, irrespective of tonnage, and some orders are being received. Bright wire is quoted at £6 17s 6d ($33.40). Sheets 3/16-inch thick range from £6 6s 6d to £6 8s ($30.75 to $31.05), and 1/16-inch sheets go at £8 11s ($41.50).



March Auto Momentum Likely to Carry Into April

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Railroads May Reduce Rates to Battle Lake Trade

Detroit, March 13

WITH Chevrolet assembling 5000 units daily, Ford 1500 to 1600, Hudson-Essex 1400, Willys-Overland 1100, and Oakland-Pontiac and Dodge each 1000, March seems certain to continue the successive increases in automobile production registered by January and February.

There are some who believe that April, as in the past three years, will see production at its peak for the spring, and for the year as well. Automotive foundries are taking in pig iron faster than in February, and the foundries usually are thirty to forty days ahead of assembling.

Ford schedules doubtless will provide the key to the situation. Today's rate of 1500 to 1600 includes branch assembling. From the manner in which releases for steel are being advanced the 2000-mark is at hand. As Ford production goes up that of low-priced competitors probably will go down. Chevrolet, meanwhile, expects to set an all-time record this month, and Whippet may almost.

Chevrolet is operating its assembly line on a full 6-day basis, while some parts departments are operating two shifts 5½ days. Chrysler and Buick each are assembling about 850 units daily, and Hupp and Olds each 300. In the higher-price field Packard is doing 200 daily, Lincoln 30 and Cadillac-LaSalle 170.

* * *

ONLY too well does the iron and steel scrap trade realize that one man's meat may be another's poison. Automobile production is practically at a record rate and makers of finished steel and pig iron are shipping in their products in commensurate fashion, yet the scrap trade has rarely plumbed such depths. So much scrap, especially of the lighter grades, is being produced that some grades have dropped almost $2 per ton in the past fortnight. Chevrolet this month will have over 12,000 tons of borings, turnings and bundles to market. The Hudson-Essex list totals 5000 tons. With scrap flooding out of the Detroit automobile plants and Pittsburgh and Mahoning valley steel mills regulating shipments closely, the market can go only one way.

* * *

ONE development of this situation is the tendency of some producers of scrap to minimize their offerings. If they will have 75 cars of turnings to dispose of they are more likely to take figures on 25 cars and then distribute 25 cars each to the three highest bidders. An offering of 25 cars does not bear down on prices so hard as one of 75 cars, and with three buyers instead of one the danger of holdups is lessened.

* * *

WITH opening of navigation on the Great Lakes only a month distant and the automobile industry assured of a good spring at least, the railroads are casting an apprehensive eye toward the freight they have been losing to vessel holds. Not if freight rates are a deciding factor will they again lose in one season the handling of 250,000 tons of scrap out of the Detroit district. It is understood that a reduction in rail rates on scrap to Cleveland and Buffalo, and possibly also to Pittsburgh and Mahoning valley points, is imminent.

Water shipment of scrap is claimed not to be unalloyed joy. Take, for example, the movement of a cargo from Detroit to Buffalo. A steamer loading 2500 tons can be chartered for $800 a day and while four days sometimes suffice, five days are usually involved. Thus the actual water rate is $1.60 per ton. There is a switching charge of 50 cents per ton at Detroit, a dock charge, a loading charge of about 25 cents a ton, and a switching charge at the Buffalo end. Probably $2.25 per ton is a fair total.

The numerous handlings constitute one disability. Railroad weights govern, and one Buffalo steel producer is said to have discovered wide discrepancies between the tonnage it paid for and the actual weight on its yard. Were the present all-rail rate of $3.65 from Detroit to Buffalo to be reduced 75 cents the water movement would be materially reduced, the scrap trade believes.

* * *

FEW businesses are so liquid as the automobile. Take the case of one important maker, now assembling over 1000 cars daily, which has no foundry and purchases many parts and bodies. It may be said to receive cash or the equivalent when its cars are loaded or driven away. When the assembly line stops at the end of the day only thirty to forty cars are on it. These, plus its raw-material inventories, sufficient only for three or four days' run, constituts its only investment, outside of its plants. It could almost liquidate over night.

Exports of Industrial Machinery Increase

Washington March 13.—Industrial machinery exports from the United States in 1927 were valued at $180,000,000, making a gain of 15 per cent over the 1926 total, and exceeded shipments for any year since 1921, according to the industral machinery division of the department of commerce.

Metalworking, conveying and construction machinery played the biggest part in swelling the 1927 total. Metalworking machinery exports were valued at $25,397,000, compared with $18,868,000 in 1926. Construction and conveying machinery shipments reached a total value of $19,126,000, making a substantial gain over 1926. Oil well machinery continued its upward movement in 1927, as did textile machinery. In the latter class, a three-year decline was broken by the 1927 gain.

Plans Second Conference on Bituminous Coal

To organize plans for the second international conference on bituminous coal to be held at Carnegie Institute of Technology, Pittsburgh, during the week of Nov. 19, Dr. Thomas S. Baker, president of the institute, expects to spend six weeks in Europe during February, March and April. The first conference, it will be remembered, was held in November, 1926, and was attended by 1700 delegates and fuel scientists from 13 countries.

A definite decision has been made to include the subject of "synthetic fertilizers from coal" in the program for the second conference. Other subjects to be considered probably will include the latest developments in obtaining substitutes for gasoline from coal, power from coal, low and high temperature distillation processes, smokeless fuel, gasification of coal, utilization of coal tar products, and coal in relation to the production of fixed nitrogen.

Trust Fund Is Set Up for Employes' Stock

An employe stock subscription plan has been announced by the Mueller Brass Co., Port Huron, Mich. All employes who were in the company's service one year at the time the plan went in effect, receive as an outright gift from the company, one share of 7 per cent cumulative preferred stock. The company will offer each employe who qualifies as to service the right to buy additional stock in amounts not to exceed 10 per cent of his annual earnings, exclusive of bonus payments. The company will deposit each year from 1929 to 1933 inclusive, a percentage of its profits in the form of a trust fund which will be distributed pro rata in January, 1933, to all employe stockholders who have remained in continuous employ of the company and who are at the date of the disbursement still in possession of their stock.

Truck Shipments Higher

Washington, March 13.—February shipments of electric industrial trucks and tractors at 120 showed an increase of 8 over January, according to the department of commerce comparison:

1927	Tractors	Domestic All other Types	Exports
February	11	120	7
March	10	96	10
April	12	89	4
May	19	77	10
June	20	97	23
July	12	73	5
August	3	87	2
September	8	66	5
October	11	81	17
Nov.	15	64	19
Dec.	8	77	11
1927 Total	135	994	130
1928			
January	5	98	9
February	15	87	18

Pails, Tubs Output Up

Washington, March 13.—Production of galvanized pails and tubs in January totaled 125,536 dozens, making a comfortable gain over December, according to the department of commerce. Monthly comparisons follow:

	PAILS. (In dozens)		TUBS.	
	Production	Shipments	Production	Shipments
Total 1926	1,429,909	1,425,672	536,103	519,492
1927				
Jan.	131,006	141,817	31,019	32,082
Feb.	138,788	165,707	39,018	36,123
Mar.	202,393	182,692	32,942	30,980
Apr.	183,812	198,711	30,423	33,785
May	159,178	133,387	33,011	29,900
June	110,909	119,724	48,849	46,357
July	124,264	128,816	30,712	31,832
Aug.	133,309	148,148	44,632	48,291
Sept.	127,608	127,530	37,776	44,852
Oct.	151,495	141,101	39,006	41,368
Nov.	112,690	110,275	35,602	28,578
Dec.	93,273	90,254	22,090	17,013
Total (year)	1,668,725	1,688,162	425,080	421,161
1928				
Jan.	125,536	149,304	32,678	35,689

Fewer Idle at St. Louis

St. Louis, March 13.—Unemployment in iron and steel plants has been decreasing since the middle of February and is now below the seasonal normal. Railroad repair shops have been adding men. Seasonal improvement in building is under way. Public improvements here will absorb nearly 4000 laborers. The surplus of common labor is no greater than ordinary at this season.

Engineering Society To Enlarge Quarters

More space is being added to the headquarters of the Cleveland Engineering society in Carnegie Hall this month to give its continuous exhibit of engineering equipment and materials opportunity to grow. The exhibit was started only a little over a year ago as an activity new among engineering societies, but already has attracted so many national manufacturers that an expansion program is necessary. The exhibit is arranged around the sides of a large meeting room used for meetings of the Engineering society and a number of other local technical organizations. Total attendance in a month is between 500 and 1000.

When alterations are complete, the meeting room will have a capacity of over 300 persons in addition to some 1800 square feet of display space around the sides of the room. Displays are placed on the floor, or arranged on tables of standard design or in glass-covered illuminated panels on the walls. The uniformity in exhibits gives the room an attractive appearance.

Enameled Ware Gains

Washington, March 13.—January enameled ware shipments increased according to figures supplied by the department of commerce. Monthly comparisons follow:

1927	In dozens Total	White	Gray	Colored
January	350,748	197,278	140,267	13,203
February	372,452	202,633	150,634	19,185
March	440,689	240,885	172,673	27,131
April	337,181	175,187	143,257	18,737
May	318,071	158,058	140,210	19,803
June	292,048	142,004	135,027	15,017
July	248,599	121,754	113,401	13,444
August	329,843	176,772	134,737	18,334
September	310,823	172,241	114,669	23,913
October	322,081	169,351	126,344	26,386
November	287,115	153,283	106,104	27,728
December	307,280	161,922	119,885	25,473
Tot., 1927	3,916,930	2,071,368	1,597,208	248,354
1928				
January	319,218	154,783	131,822	32,613

Ask Tungsten Duty Rise

Washington, March 13.—Three applications have been made by domestic producers of tungsten ore to the tariff commission seeking an increase in the present tariff, which is 45 cents per pound on metallic tungsten contained. When similar applications were made in the past a preliminary survey was made by the commission but action went no further. Chief imports are from China.

Machinery

As March Orders Are Well Maintained, Manufacturers and Dealers Look for a Good First Quarter—Industrial Buying Good

ORDERS for machine tools and shop equipment are being booked at a somewhat more restricted rate than during February, nevertheless, all indications point to the fact that business placed during the first quarter of 1928 will show a most satisfactory total. Individual orders are not large, but are in sufficient volume to make substantial totals. The automotive industry is buying little, except miscellaneous items, likewise the railroads are buying sparingly. Lackawanna railroad has bought its requirements consisting of between 15 and 20 miscellaneous items. In the Chicago territory, farm equipment manufacturers are providing good inquiries. General industrial buying is good in nearly all sections. Buyers press for early delivery.

New York, March 13.—Machine tool demand is moderate although somewhat less active than a week ago. The Lackawanna is understood to have closed on all the equipment it plans to purchase at this time, but aside from that there has been little outstanding. Distribution of the Lackawanna list is reported as follows: 42-inch squaring shears, flexible shaft grinder, swing frame grinder and slitting shear to the D. Nash Machinery Co.; two 50-ton hydraulic presses and one steam hammer to the Chambersburg Engineering Co.; one grinder and one 16-inch sensitive drill to Percy M. Brotherhood; two floor grinders to the Arch Machinery Co.; one 50-ton drop pit table to the Whiting Corp.; wheel press gage to the Ashton Valve Co.; one 20-inch engine lathe to the Niles Tool Works; and two electric welding sets to the Westinghouse Electric & Mfg. Co. It is also reported that this company has placed two or three additional engine lathes. Crane inquiry continues moderately brisk, but orders are still coming through slowly. This applies to locomotive as well as overhead cranes. Fairchild Airplane Mfg. Corp., Farmdale, Long Island, has been a consistently good buyer of machine tools of late for its new plant in that town.

Worcester, Mass., March 13.—Both inquiries and buying show slight improvement in this district, but attention is largely centered on single units with few sizable lists pending. Machine shop buying continues steady and several light hammer tools have been sold. Competition remains extremely keen. Grinding machinery is in good demand and plants making that type of machinery are doing well. Inquiry for automatic production units continues good. Several electrical and airplane manufacturers are also asking for equipment. Small tools are being taken close to needs. Forging plants are busy and one has inquired for new equipment. While as a whole the market shows a slight gain, activity is still spotty, and textiles are slow to forge ahead.

Pittsburgh, March 13.—Individual tools make up the machinery sellers' order book at present. Westinghouse Electric & Mfg. Co. bought two additional items, a milling machine and a turret lathe, closing up its first quarter negotiations. Its second quarter list now in preparation is said to be disappointing because requirements are being pared down to the limit of absolute needs. Pittsburgh Plate Glass Co. bought a special horizontal boring machine. Several dealers report that order receipts to date are not quite up to the record of February to the same date, but are better than two months ago. A large number of inquiries are pending. Bessemer & Lake Erie railroad has revived a list issued several months ago for Albion, Pa. Chesapeake & Ohio wants a drill press. Pittsburgh & Lake Erie will build some shops at Dickerson Run, near Connellsville, Pa., but nothing has been heard from the Baltimore & Ohio as yet with reference to its rebuilding program. Several steel companies, including the Jones & Laughlin Steel Corp. and Wheeling Steel Corp. are said to be contemplating equipment purchases. The latter interest also wants cranes which will be bought within a month.

Chicago, March 13.—Farm implement interests furnish the leading inquiries for machine tools. International Harvester Co. is asking bids on more than a dozen important items for its Rock Island, Ill., plant. John Deere & Co. are inquiring for a number of tools for the company's Moline, Ill., works, for which equipment also was purchased last year. J. I. Case Threshing Machine Co., Racine, Wis., has been negotiating for some time on a number of specially built machine tools but has not yet closed. Inquiry from general industrial lines is a shade below February activity, but scattered sales are fairly numerous. Railroad inquiry is slow to develop, aside from the Santa Fe List. The Burlington has asked for a heavy-duty grinder and an electric flue welder, while the Santa Fe has augmented its list with an inquiry for a milling machine. A southern Indiana manufacturer has closed on a 21-inch lathe, and a South Bend, Ind., industrialist purchased a milling machine. A Duluth iron works has purchased a lathe, and several lathes were sold in the Chicago district. A few sales are reported in welding machines and friction saws. An automotive company is asking bids on used milling machines, turret lathes, boring mills, radial and multiple spindle drills and riveting and threading equipment. Demand for used tools continues active.

Cleveland, March 13.—Buying holds up well in this territory and March apparently will take its place alongside of January and February, which were both good selling months. Inquiries are fair and for only small amounts of equipment, but the volume is steady. With buyers insisting upon prompt shipment, dealers with tools on the floor are in a more advantageous position than those giving delivery from the factory. Automotive interests in this city and Detroit are providing little business. Demand for used equipment is good.

CRANE ORDERS PLACED

Two 2-ton electric traveling cranes and one 3-ton grab bucket hoist for Union Bag & Paper Corp., New York, for shipment to Tacoma, Wash.; awarded to Box Crane & Hoist Corp.

Two 10-ton electric overhead cranes for Danville Structural Steel Co., Danville, Pa., placed; contract reported going to Northern Engineering Works.

Among single orders were: crawler crane for A. Di Marco, White Plains, N. Y., to Northwest Engineering Co.; 100-ton electric crane for Philadelphia Electric Co., Philadelphia, to Niles Crane Corp.; 5-ton handpower crane for Long Island stoneyard, to New Jersey Foundry & Machine Co.; 20-ton electric crane for American Smelting & Refining Co., New York, to Harnischfeger Corp.; 5-ton crane for installation at Attica, N. Y., by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to Northern Engineering Works; 10-ton crane for McClintic-Marshall Co., Pottstown, Pa., to Harnischfeger Corp.

CRANE ORDERS PENDING

Five 5-ton electric cranes for Textile Foundry Machine Co., Reading, Pa.; bids asked.

10-ton hand-operated traveling crane complete with accessories for department of public works, Chicago; pending.

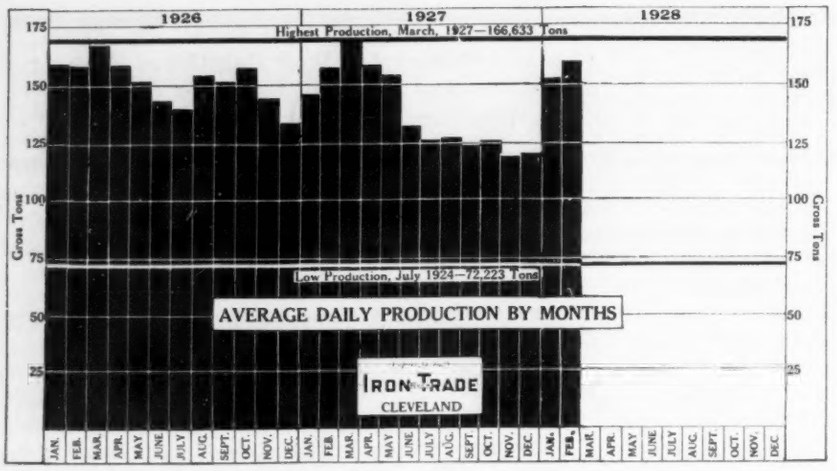
Two 200-ton cranes for Wheeling Steel Co., Wheeling, W. Va.; pending.

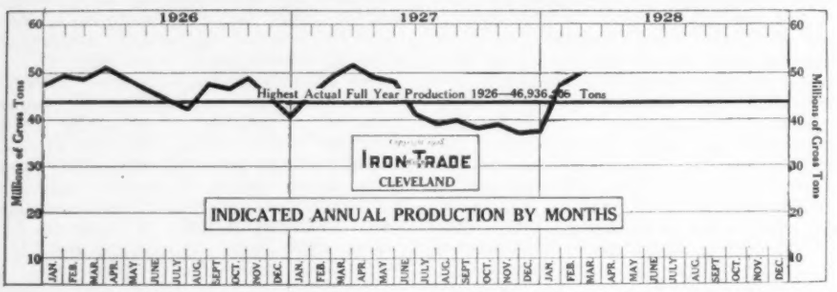
5-ton single I-beam underhung crane for Olney Foundry Co., Philadelphia; bids asked.

Dominion May Subsidize

Toronto, Ont., March 13.—J. L. Ralston, Nova Scotia, member of the cabinet, said in parliament recently that with settlement of the affairs of the British Empire Steel Corp. under way there is some prospect that the steel and coal industries of Nova Scotia will be assisted by a subsidy from the dominion government.

Bethlehem Steel Co. as of March 1 has issued a new extra card on hoops and bands. Quantity differentials are placed on a lump sum basis and cutting extras are increased.





Ingots New High for February

NOT only did the production of steel ingots in February make another substantial gain, but it reached a level which was the highest for any February in history. Moreover, in only four other months has the output been greater and these were the months of March in 1924, 1925, 1926 and 1927. With the February production representing 96.5 per cent of the all-time record of last March, it seems likely that a new record will be established this month.

According to statistics compiled by the American Iron and Steel institute from figures reported by companies which in 1927 represented 95.4 per cent of the country's capacity, the output of open hearth and bessemer ingots for February was 4,014,774 gross tons. Compared with the revised total of 3,961,209 gross tons of January, this was an improvement of 53,565 tons. February had only 25 working days, against 26 in January.

Average daily production in February was 160,591 tons, which compared with the 152,354 tons of the previous month was a gain of 8237 tons per day, or 5.4 per cent. The increase of January over December was 25.6 per cent. Previous to last month, the record February daily rate was in February, 1926, with 157,710 tons. The rate for February one year ago was 157,557 tons. The record output for all time was in March, 1927, with a rate of 166,633 tons. Last month's production fell short of this by only 6042 tons per day, or 3.6 per cent.

With a production of 160,591 tons per day in February and 311 working days in the year, the indicated annual production was 50,000,000 tons. For January the rate was 47,500,000 tons. According to the institute's calculations, operations in February were at 87.27 per cent, against a rate of 82.79 per cent in the month before. Annual capacity is regarded as 57,230,350 tons of open-hearth and bessemer ingots.

Steel Ingot Production—1927-1928

95.40 Per Cent of Industry Reporting

Gross Tons

1927	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	Number of working days	Approximate daily output all companies	Per cent of operation
Jan.	3,041,233	545,690	3,586,923	3,759,877	26	144,611	78.58
Feb.	3,042,232	565,201	3,607,433	3,781,376	24	157,557	85.62
Total 2 mos.	6,083,465	1,110,891	7,194,356	7,541,253	50	150,825	81.96
March	3,701,418	590,716	4,292,134	4,499,092	27	166,633	90.55
April	3,340,852	565,634	3,906,486	4,094,849	26	157,494	85.59
May	3,272,810	557,683	3,830,493	4,015,192	26	154,430	83.92
June	2,822,477	486,047	3,308,524	3,468,055	26	133,387	72.48
July	2,595,692	436,446	3,032,138	3,178,342	25	127,134	60.09
Aug.	2,805,657	505,584	3,311,241	3,470,903	27	128,552	69.86
Sept.	2,611,976	471,455	3,083,431	3,232,108	26	124,312	67.55
Oct.	2,641,920	495,798	3,137,718	3,289,013	26	126,500	68.74
Nov.	2,477,253	481,830	2,959,083	3,101,764	26	119,299	64.83
Dec.	2,557,130	448,299	3,005,429	3,150,345	26	121,167	65.84
Total 1928	34,910,650	6,150,383	41,061,033	43,040,916	311	138,395	75.21
Jan.	3,280,247*	498,746*	3,778,993*	3,961,209*	26	152,354*	82.79*
Feb.	3,308,728	521,366	3,830,094	4,014,774	25	160,591	87.27
Total 2 mos.	6,588,975	1,020,112	7,609,087	7,975,983	51	156,392	84.99

Figures exclude crucible and electric ingots. Operation percentages are based on an annual capacity for open hearth and bessemer steel ingots of 57,230,350 gross tons.
*Revised.

Steelworks Employment in Ohio Gains

January reports from ten Ohio steelworks and rolling mills show an increase in employment for the first time since May, 1927. Employment was 7 per cent greater than in December, but 11 per cent less than in January, 1927.

January employment reports from seven Ohio blast furnaces show a decline from December which brings the index below the low point of August, 1927. Employment in January was 12 per cent less than in December and 25 per cent less than in January, 1927.

January employment reports from 64 Ohio foundry and machine shops show no change from the low level maintained since November. Employment in January was 13 per cent less than in January, 1927. The statistics were compiled by the bureau of business research, Ohio State university.

Send Out Door Standard

Washington, March 13.—A complete report of the simplification program adopted by the kalamein door industry is being distributed by the simplified practice division of the department of commerce. When 80 per cent of the industry has accepted, the standard will be declared operative.

CONSTRUCTION *and* ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

HARTFORD, CONN.—Royal Typewriter Co., New Park avenue, has awarded the contract for a 1-story plant addition, 35 x 120 feet to Denis O'Brien & Sons Inc., Hartford.

NEW HAVEN, CONN.—Koppers Co., Waterfront street, has awarded the contract for a by-products plant, 98 x 124 feet, 1 and 2 stories.

THOMASTON, CONN.—Seth Thomas Clock Co., Elm street, plans to build a 4-story plant, 60 x 100 feet.

NEW CASTLE, DEL.—Bellanca Aircraft Inc. will build a plant 135 x 190 feet for the manufacture of airplanes. Bids were closed March 10.

BOSTON—Commercial Metal & Smelting Co. has been incorporated with $50,000 capital to smelt and refine metals by Louis D. Crick, Hull, Mass.

BOSTON—Emerson-Mason Corp. has been incorporated with 200 shares no par value stock to manufacture electric refrigerators and other machinery and appliances, by Scott Emerson, 16 Lawson road, Winchester, Mass.

BOSTON—Atlantic Public Service Management Corp. has been incorporated with 1000 shares no par value stock to engage in erection of works, bridges, plants, etc., by Linwood C. Chase, 15 Lincoln road, Wellesley, Mass.

FITCHBURG, MASS.—Independent Lock Co., manufacturer of locks, hardware, key blanks, etc., is building a new addition 40 x 154 feet to be used for offices and shipping purposes, allowing more room for manufacturing purposes. Much of the new building will be devoted to assembly of automobile lock units. (Noted March 1.)

SOUTH BOSTON, MASS.—New England Metal Culvert Co., Tennyville street, plans to build a 1-story plant, 80 x 85 feet, at 10 Alger street.

SPRINGFIELD, MASS—W. E. Haskell Inc. has been incorporated with 300 shares no par value stock to manufacture electrical equipment and other apparatus, by William E. Haskell, 77 Magnolia terrace, Springfield.

WESTFIELD, MASS.—Contract for a steel reinforced hangar for the Holyoke-Westfield airport has been awarded the Austin Co. It will be 60 x 80 feet and will include a machine shop.

MORGAN, N. J.—V. & V. Mfg. Co. Inc. has been incorporated with $50,000 capital to manufacture automobile supplies by Robert Newton Crane, Plainfield, N. J., attorney.

NEWARK, N. J.—Rite Mfg. Co. has been incorporated with 2500 shares no par value stock to manufacture air valves by Wolber & Gilhooly, Newark, attorneys.

NEWARK, N. J.—Curtisce Mfg. Co., manufacturer of furnace blowers, has moved to Central avenue and Washington street, where it has leased space in a building there.

PASSAIC, N. J.—New Jersey Electric Sign Mfg. & Supply Co. has been incorporated with $50,000 capital by Peller & Boss, Passaic, attorneys.

PERTH AMBOY, N. J.—Fords Porcelain Works Inc., Lehigh avenue, manufacturer of sanitary ware, plans to rebuild the part of its plant burned recently.

TRENTON, N. J.—Contract for the structural steel for a laboratory building for John A. Roebling's Sons Co. has been awarded to the Phoenix Bridge Co.

BINGHAMPTON, N. Y.—Anseo Photo Products Inc., Charles street, manufacturer of cameras, tripods, etc., plans to build a plant addition.

BROOKLYN, N. Y.—Pulaski Ornamental Iron Works has been incorporated with $10,000 capital by J. Brenner, 291 Broadway, Manhattan, attorney.

BROOKLYN, N. Y.—Randworth Mfg. Co. has been incorporated with $20,000 in preferred shares and 100 shares no par value stock to manufacture electrical machinery by Monfried & Warner, 1440 Broadway, Manhattan, attorneys.

BUFFALO—Wickwire-Spencer Steel Co. has awarded the contract for structural steel for its plant addition to the Lackawanna Steel Construction Co.

NEW YORK—Park Close Mfg. Co. has been incorporated with 100 shares no par value stock to manufacture hardware, by Schanzer & Ostrow, 15 Park Row, attorneys.

NEW YORK—Long Island Steel Table Co. has been incorporated with $50,000 capital by J. T. Kreeger Jr., Long Island City, N. Y., attorney.

NEW YORK—American Radiator Co., 40 West Fortieth street, will build a factory branch and distributing plant on newly ac-

Resale Equipment News

COMPLETE freight car building plant of the William Hamilton & Sons Car Co., Newark, O., will be sold at auction April 10. The sale includes land, buildings and equipment of machine, fabricating, forging, sheet metal, finishing and woodworking shops. Among the tools are: 1000-ton double crank power press, 60 x 144 inches, with 12-inch stroke; 48-inch gap shear with multiple punch attachment; hand tools, air hammers, drills and others.

* * *

Sale of assets of Gehret Bros. Inc., Bridgeport, Conn., structural and other iron and steel products, has been set for March 17. W. R. Browne, receiver, who has operated the plant for some time, is in charge of the sale. Bridgeport Iron Works has been formed to take over the company and probably will be one of the bidders.

* * *

Machine tool stock of the Wickes Machinery Co., Jersey City N. J., was sold at auction March 13. The stock was partly new and partly reconditioned tools.

* * *

Entire plant and equipment of the Freeman-Daughaday Co., Chartley, Mass., was sold at auction March 13 at the plant. The equipment included boilers, generators and tool-room tools, besides the regular machinery used in the manufacture of buttons and special equipment.

Sales Calendar

March 15—*Navy surplus at auction at Philadelphia navy yard.*

March 17—*Receiver's sale of assets of Gehret Bros. Inc., Bridgeport, Conn.*

March 19-20—*Receiver's sale machinery and equipment of Electric Commercial Truck Co., Philadelphia.*

April* 3—*Plant and equipment of Bilton Machine & Tool Co., Bridgeport, Conn., to be sold at public auction by the receiver.

April 10—*Auction of land, buildings and equipment of William Hamilton & Sons Car Co., Newark, O.*

Iron and Manganese Ores and Minerals

LAKE SUPERIOR ORES

Iron Ore

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 58 to 63 per cent	8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45 to 55 per cent iron and 6 to 8 per cent manganese	10.00 to 10.50
North African low phosphorus	nominal
Swedish foundry or basic, 65 per cent	9.00 to 9.50
Spanish and North African basic, 50 to 60 per cent	8.50 to 9.00
Newfoundland foundry, 55 per cent	9.00 to 9.50

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	36 to 38 cents
Caucasian, 53 to 55 per cent washed	38 to 40 cents

Fluorspar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$14.50 to 15.00
Washed gravel, imported duty paid eastern tidewater, per net ton	15.50 to 16.00

quired property in Louisville, Ky., at Brook street and Eastern Parkway.

NEW YORK—Slide Valve Motor Aircraft Corp. has been incorporated with $50,000 capital, to manufacture airplanes by S. Vinton, 37 West Forty-third street, attorney.

NEW YORK—Ace Automatic Sprinkler Corp. has been incorporated with $20,000 capital to manufacture and deal in fire extinguishers, by J. W. Clancy, 38 Park row, attorney.

NEW YORK—Raeburn Metal Products Co. has been incorporated with $5000 capital to manufacture writing materials, by H. G. Litwin, 1540 Broadway, attorney.

NEW YORK—Electric Servidor Corp. has been incorporated with $10,000 capital to manufacture cooking devices, by Miller, Bretzfelder & Boardman, 291 Broadway, attorneys.

ROCHESTER, N. Y.—Eastman Kodak Co. has organized Recordak Corp. with $1,000,000 capital to manufacture and market a device used to protect banks against fraudulent checks. F. W. Lovejoy, vice president of Eastman Kodak Co., is president of the new corporation.

DUQUESNE, PA.—Hornberger Motor Co. Inc. has been incorporated with $25,000 capital to assemble, repair and deal in automobiles, trucks, etc., by James C. Hornberger, 50 North First street.

EASTON, PA.—Easton Art Metal Corp. has been incorporated with $5000 capital to manufacture castings, forgings and similar iron and steel products, by Joseph Bolinsky, 1007 Washington street, Easton.

HARRISBURG, PA.—Mermac Appliance Co. has been incorporated with $25,000 capital to manufacture, install, repair, and deal in domestic heating, refrigerating and kindred devices, by Charles G. McAvoy, 1705 North Second street.

INDIANA, PA.—Auto Parts Co. has been incorporated with $50,000 capital to manufacture and deal in automobile, truck and airplane accessories, by Samuel A. Brubaker, Indiana.

PHILADELPHIA—Craftsman Electric & Mfg. Co. has been incorporated with $100,000 capital to manufacture and deal in electrical and kindred products, by Milo C. Burt, Strafford, Conn.

PHILADELPHIA—DeVries & Trinkle Inc. has been incorporated with $10,000 capital to manufacture and deal in ornamental and structural iron and steel by Edward A. DeVries, 2444 Hillcrest road, Drexel Hill, Pa.

PHILADELPHIA—Muller & Postle Inc. has been incorporated with $8000 capital to manufacture, erect, and deal in structural iron and steel, by Henry E. Muller, 2110 North Twenty-eighth street.

PHILADELPHIA—Kensington Shipyard & Drydock Co. has been incorporated with $10,000 capital to build, repair and maintain ships, vessels, engines, etc., by Francis J. McDonald, Ardmore, Pa.

PHILADELPHIA—Contract for the erection of the proposed mill addition for Van Straaten & Harvey Inc., 137 Berkley street, has been awarded to the J. S. Rogers Co. The building will be 4 stories high, of brick and reinforced concrete.

PHILADELPHIA—Brown Instrument Co. soon will start construction on a 2-story plant addition, 44 x 60 feet, reinforced concrete, flat slab construction, brick veneered. The addition will allow for expansion in the research laboratory and rearrangement of the office space. (Noted March 1.)

PHILADELPHIA—Contract for the erection of a 1-story building for the Nice Ball Bearing Co., Twenty-ninth street and Hunting Point avenue, has been awarded to the J. S. Rogers Co. The proposed structure will be of brick and reinforced concrete, and will be built on a site containing 40,000 square feet. (Noted March 8.)

PITTSBURGH—Fort Pitt Battery Co. has been incorporated with $10,000 capital to manufacture, repair and deal in storage batteries, by Walter F. Taylor, 3606 Ridgway street.

POTTSVILLE, PA.—Gordon Nagle is reported to have organized a company for the fabrication of light structural steel. A plot 150 x 300 feet will be used.

READING, PA.—Natural Products Co. Inc. has been incorporated with $50,000 capital to manufacture and deal in supplies and appliances for steel works and foundries, by Reginald B. Harrison, 260 Carsonia avenue, Mt. Penn, Pa.

UNIONTOWN, PA.—Steiner Service Co. has been incorporated with $15,000 capital to manufacture and deal in motor vehicles, airplanes, parts, etc., by Charles L. Steiner, Uniontown.

WARREN, PA.—Moore-Mathis Tank Line has been incorporated with $100,000 capital to manufacture and deal in freight cars, tank cars, etc., by Frank F. Moore, Bradford, Pa.

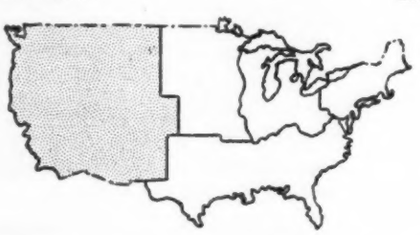
West Central

WATERLOO, IOWA—Chamberlain Machine Works, 2500 East Fourth street, plans to build a 1-story plant addition, 36 x 100 feet.

ANGLUM, MO.—Curtiss-Robertson Airplane Mfg. Co., Bridgeton, has awarded the contract for a plant, 60 x 250 feet, including a woodworking shop and storage building 40 x 60 feet.

KANSAS CITY, MO.—Puritan Aluminum Co. has been incorporated to manufacture cooking utensils by G. C. Downey, 701 Lloyd building.

ST. LOUIS—Landis Machine Co., Second and Gano streets, manufacturer of leather stitching machinery, has increased its capital and plans expansion.



Western States

HANFORD, CALIF.—Cousins Tractor Co. has acquired property 50 x 150 feet, adjoining its present plant and plans to build an addition to be used for a machine shop and tractor assembly. Edward Cecil is head of the tractor company.

LOS ANGELES—Hallett Mfg. Co., manufacturer of marine motors, will build a new

plant to start the manufacture of airplane motors.

OAKLAND, CALIF.—East Bay Iron & Metal Works, 2310 Peralta street, plans to rebuild its plant recently damaged by fire.

SAN DIEGO, CALIF.—San Diego Consolidated Gas & Electric Co. has awarded the structural steel contract for a power house to the McClintic-Marshall Co.

BOULDER, COLO.—Silver Wing Aircraft Co. has leased the building formerly occupied by the Superior Metal Products Co. and will manufacture airplanes and operate an airplane school. A. J. Hogue Jr. is one of the backers of the enterprise.

East Central

ANTIOCH, ILL.—Corona Fountain Pen Co., C. K. Anderson, president, will rebuild its plant recently burned, and replace equipment damaged by fire.

BLOOMINGTON, ILL.—Hayes-Custer Stove & Furnace Co. will build a plant addition on newly acquired property.

CANTON, ILL.—American Automotive Accessories Corp., J. R. Calderon, manager, contemplates building a 1-story plant addition.

CHICAGO—C. B. Isett & Son, 1701 Winnebago avenue, manufacturers of boilers and tanks, plan to build a 1-story plant, 50 x 125 feet.

CHICAGO—Ditto Inc., manufacturer of duplicating machines, has purchased a building and adjoining property, from the General Electric Co., and will use it for a new plant.

CHICAGO—Blake Specialty Co., 360 North Michigan avenue, John Heinkel, Rock Island, Ill., president, will build a foundry addition. (Noted Feb. 9.)

CHICAGO—Buick Motors Co., General Motors building, Detroit, has awarded the contract for 1-story automobile manufacturing building to Fred C. Foltz, 510 North Dearborn street.

CHICAGO—Parts Mfg. Co., Inc., 1239 South Western avenue, has been incorporated with $20,000 in common stock, to manufacture and deal in metal parts and equipment by F. C. McCrum, Max F. Goldberg and L. J. Harris.

CHICAGO—Morton Protective Cap Co., 139 North Clark street, has been incorporated with $50,000 in common stock to manufacture and deal in metal caps by G. W. Shaeffer, Abe Morton and Sabin R. Esack.

CHICAGO—Light House Lamp Mfg. Co., 1110 South Oakley boulevard, has been incorporated with $5000 capital to manufacture and deal in lamp shades and light fixtures, by Frieda and Jacob Kovner, and C. E. Miller.

CHICAGO—Fire King Corp., 1055 West Monroe street, has been incorporated with $1500 common stock to manufacture and deal in machinery, fixtures, etc., by Ray Glaspell, Chester Kay and E. B. Traub.

CHICAGO—Balsart Mfg. Co., 5902 West North avenue, has been incorporated with 1000 shares no par value stock to manufacture and deal in radio receiving sets, loud speakers, etc., by Lester J. Reidy, Joseph Reidener and W. W. Murray.

OTTAWA, ILL.—National Plate Glass Co. subsidiary of General Motors Corp., Detroit, has awarded the contract for structural steel for its new plant.

ROCKFORD, ILL.—Solem Machine Co., P. A. Solem, 158 Morgan street, president, plans to build a 1-story plant and office building.

ROCKFORD, ILL.—Rockford Drop Forge Co., E. S. Eckstrom, president, has awarded the contract for a plant addition, 100 x 155 feet.

SALEM, ILL.—Salem Battery Mfg. Co., 208 South Walnut street, has been incorporated with $10,000 capital to manufacture and deal in batteries and parts by J. M. Copeland, Ione Thornberry and Sallie Bohannon.

SOUTH BEND, IND.—Bantam Ball Bearing Co., incorporated recently, has awarded the general contract for a 1-story plant to H. G. Christman & Co., 306 South Notre Dame. (Noted Feb. 23.)

ANN ARBOR, MICH.—King-Seeley Co., 294 Second street, is inquiring for machinery and equipment for the manufacture of small metal parts for gasoline gages.

BAY CITY, MICH.—Chevrolet Motor Car Co., Flint, Mich., has awarded the contract for structural steel for its forge plant to Mahon Structural Steel Co. (Noted March 1.)

BEECHWOOD, O.—K. & M. Brass & Aluminum Castings Co. has been incorporated with $15,000 capital by Albert F. Misch, Richard S. Male and Edward J. Kortan.

CINCINNATI—Cincinnati Ball Crank Co., Disney street, has awarded the contract for a 1-story plant addition to Austin Co., Cleveland.

CLEVELAND—Acme Metal Products Co. has purchased property on the Belt Line railroad, near East Fifty-second street, and will use it as a site for its new steel products plant.

CLEVELAND—J. M. & L. A. Osborn Co., 1541 East Thirty-eighth street, sheet metal dealer, has awarded the contract for three units to be built in Buffalo at 68 Rapin street, to O.-M.-S. Co. Inc., Buffalo.

COLUMBUS, O.—Ohio State university has awarded the contract for structural steel for its power house to Massillon Bridge & Structural Co.

DAYTON, O.—C. H. Gosiger Machinery Co., noted incorrectly in the issue of March 1, as Gosite Air Machine Co., is building larger quarters, 110 x 148 feet.

GALION, O.—Central Ohio Steel Products Co. has been incorporated with 500 shares no par value stock by Gardner Abbott, J. C. Little and Carter Kissell.

SPRINGFIELD, O.—International Harvester Co., Chicago, has awarded the structural steel contract for its plant to Bellefontaine Bridge & Steel Co.

TOLEDO, O.—Willys-Overland Co., builder of automobiles, contemplates erecting a new assembling plant at Columbia, S. C.

WOOSTER, O.—Safety Stair Tread Co., Spruce street, Charles E. Loehr, general manager, plans to build a 1-story plant and warehouse.

YOUNGSTOWN, O.—Contract for buck staves or bracing for brick work in the boiler shop of the Youngstown Sheet & Tube Co. has been awarded to the Pittsburgh Bridge & Iron Co.

ZANESVILLE, O.—Federal Radiator & Boiler Co. plans to rebuild the portion of its plant burned recently.

ZANESVILLE, O.—H. V. Dockray Brass & Iron Co., H. V. Dockray, manager, plans to build a 1-story plant addition. J. P. Schooley, Masonic building, is architect.

GREEN BAY, WIS.—A department for the production of gasoline and oil truck tanks is being opened by the Wisconsin Fabricating Co., 401 Pearl street.

KENOSHA, WIS.—Hutter Construction Co., Fond du Lac, Wis., has the contract to build a new power house and laundry, 37 x 45 x 60 feet, for St. Catherine's hospital here.

MILWAUKEE—A 2-story addition, 42 x 62 feet, is being erected by the Wisconsin Iron & Wire Works at 1660 Booth street.

MILWAUKEE—Capital stock of the Jambor Tool & Stamping Co., 1261 Thirtieth street, has been increased from $100,000 to $200,000. A. L. Kaems is president.

MILWAUKEE—A coppersmithing shop addition, 35 x 78 feet, will be erected for Carl Bobke at 3030 Lisbon avenue, manufacturer of copper building materials and other copper goods.

NEENAH, WIS.—Bergstrom Paper Co. will start work May 1 on the erection of a new

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works
First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., and East Chicago, Ind.	52.00
Birmingham	51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE
Per Net Ton Chester, Pa. and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK
Per Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

power plant requiring three boilers and turbines. The engineers are Orbison & Orbison, Appleton, Wis.

RACINE, WIS.—Racine Screw Works suffered damage to its plant and equipment in a recent fire.

RACINE, WIS.—A 2-story shop, 40 x 120 feet, is to be erected here by the Reliable Mfg. Co., now in leased quarters at 417 Lake avenue. The company manufactures electric toasters, hot pads, etc. Architect A. L. Flegel, Racine, is drawing plans.

Southern States

BIRMINGHAM, ALA.—American Bolt Co., 3830 Tenth avenue north, contemplates the installation of additional machinery.

LOUISVILLE, KY.—B. J. Wehner Welding Co. has been incorporated by B. J. and L. L. Wehner, 909 East Jefferson street.

CHARLOTTE, N. C.—C-P Motors Inc., West Eighth street, plans to build a new plant for the manufacture of automobiles.

Edwin Burke is president of the company.

MUSKOGEE, OKLA.—Muskogee Iron Works, Frankfort and Spaulding streets, has acquired the Oklahoma Engineering & Foundry Co., 1605 Cherokee street.

TULSA, OKLA.—Big Four Foundry Co. has been incorporated with $25,000 capital by J. L. Smith, 2200 West Twenty-first street.

TULSA, OKLA.—Mid-Continent Iron & Wire Works Inc. has been incorporated by E. L. and H. W. Callahan, 1411 South Newport.

Canada

BELLEVILLE, ONT.—Springer Lock Works, Coleman street, will build 2-story addition, 40 x 60 feet, brick construction, to its plant.

BLIND RIVER, ONT.—Plans and specifications are being prepared by F. A. Dallyn, consulting engineer, 71 King street west, Toronto, Ont., and tenders will be called about the end of this month for complete new waterworks and sewage plants to be installed here.

BRANTFORD, ONT.—Brantford Roofing Co., 22 Sydenham street, has let contract to Schultz Construction Co., 45 Albion street, for addition to its plant here.

GLENCOE, ONT.—Town council is having plans prepared by F. A. Dallyn, consulting engineer, 71 King street west, Toronto, Ont., for waterworks plant and system here.

OSHAWA, ONT.—The plant of the General Motors of Canada Ltd., automobile manufacturer, on Feb. 28, was damaged by fire.

TORONTO, ONT.—Pass Automatic Totalizers Ltd. has been incorporated to manufacture and deal in machines and devices with $200,000 capital by Edward M. Hughes, Alexander W. MacIvor and Harold L. White.

TORONTO, ONT.—Cober-Thompson Elevator Co. Ltd. has been incorporated to manufacture and deal in signal systems and equipment with $40,000 capital by Allington T. Bowlby, Arthur A. Macdonald and Dougal P. MacDougall.

WALKERVILLE, ONT.—Border Cities Aircraft Ltd. has been incorporated to manufacture and deal in airplanes, airships, flying machines, etc., with $40,000 capital by Norman A. McLarty, James W. Reid and Bruce T. S. Macdonald.

WINDSOR, ONT.—James Cowan & Co. of Windsor Ltd., has been incorporated to manufacture and deal in hardware, bar iron, steel, tools, etc., with $40,000 capital by James A. Cowan, Archibold J. Hazelwood and Samuel J. York.

WINDSOR, ONT.—Charles Porter Sales Co. Ltd. has been incorporated to manufacture and deal in automobiles, motors, engines, machines, etc., with $100,000 capital by Lorne R. MacDonald, Helen M. McTague and Violet Fitzsimons.

MONTREAL, QUE.—Gausden & Volckmar Ltd. has been incorporated to manufacture iron, steel, other metals, and their products with $100,000 capital by Charles A. Hale, Francis J. Laverty and Shirley G. Dixon.

MONTREAL, QUE.—Reid Aircraft Co. Ltd. has been incorporated to manufacture and deal in airships, airplanes, flying machines, etc., with 75,000 shares of no par value stock by William S. Lighthall, Earnest F. Peacock and Russell Hannan.

MONTREAL, QUE.—Hammock Spring Suspension Co. Ltd. has been incorporated to manufacture and deal in automobiles, motorcycles, locomotives and cars with $99,000 capital by Howard K. Hawthorne, John E. Grivell and Hanna G. McKeil.

MONTREAL, QUE.—De Luxe Cab Ltd., of Montreal has been incorporated to manufacture and deal in automobiles, motor cars, motorcycles, etc., with $220,000 capital by Edward S. McDougall, Kenneth A. Biggar and Darley Burley-Smith.

New Trade Publications

ELECTRIC MOTORS—General Electric Co., Schenectady, N. Y., has issued a bulletin on a type of motor of its manufacture, for alternating current use, with adjustable speed and brush shifting. Details of construction and wiring and full data are given.

ROLLER BEARINGS—Savings in operation of steel-mill cars by use of its roller bearings are described in a bulletin by the Hyatt Roller Bearing Co., Pittsburgh. Ingot mold cars, charging cars and hot metal cars are shown and economies are outlined.

INDUCTION MOTORS—Allis-Chalmers Mfg. Co., Milwaukee, has issued a bulletin on its polyphase induction motors of two types, squirrel cage and slip ring type, with slip or roller bearing, in standard vertical and horizontal types. Control devices and other accessories are also illustrated.

ELECTRIC HOISTS—Chisholm-Moore Mfg. Co., Cleveland, has issued a catalog of electric hoists, one of a series on material handling equipment. The general subject of electric hoists is covered, with description of various types of hoists and their use and care. Tables of clearances and dimensions and other data are given.

ELECTRIC STARTER—Allen-Bradley Co., Milwaukee, in a current bulletin suggests uses for its automatic compression resistance starter. Smooth starting and gradual acceleration are claimed for its use. The bulletin is illustrated.

THERMOSTATS—Robertshaw Thermostat Co., Youngwood, Pa., in a current bulletin outlines advantages of its thermostats for industrial appliances. A wide list of applications is given and remarkable precision of temperature control is shown.

CHUCKS—City Machine & Tool Works, Dayton, O., has issued a bulletin on its gear grinding chuck for holding gears for internal grinding. Illustrations and diagrams show the equipment and details of construction.

STAMPINGS—The Crosby Co., Buffalo, uses 22 pages of half tones of metal stampings made in their plant for standard and special purposes, with one small page of text, offering assistance in solving stamping problems. A wide variety of stampings is shown.

TOOLS—Union Fork & Hoe Co., Columbus, O., has issued its current catalog and price list of tools. A new plan has been followed in presenting illustrations and explanatory text, suggesting little-known uses in many instances. It is designed especially for use of the retail hardware dealer.

MILLING ATTACHMENTS—Porter Cable Machine Co., Syracuse, N. Y., has published a booklet on milling attachments, showing their operation, illustrating various installations and describes what may be done on each type. Tapered-end mills for pattern work and rotary filing are shown.

CONCRETE WATERPROOFING—Stone & Tar Products Co., 97 South Sixth street, Brooklyn, N. Y., has issued a booklet covering its waterproofing materials for use with cement and other materials to increase wear and prevent water infiltration. Many uses of these materials are suggested.

45% to 60% Power Savings with Timken Bearings

Anti-friction benefits are available in steel production only because of the supreme bearing endurance made possible by Timken tapered construction, Timken-made steel and Timken *POSITIVELY ALIGNED ROLLS*. Thrust, shock and radial load are all scientifically carried in simple, compact mountings.

Throughout the steel industry foremost equipment builders and users are adopting Timken Tapered Roller Bearings. E. W. Bliss Company, Salem, Ohio, equip roll necks and pinions with Timkens.

By eliminating all possible friction Timken Tapered Roller Bearings reduce power consumption as much as 45% to 60%, and in new installations permit the use of smaller and less costly power units! Lubrication costs are radically reduced. Wear is practically eliminated. Shutdowns are effectively prevented. Full mill capacity may be maintained over greatly prolonged periods. Greater tonnage is turned out at less cost per ton. Data on request —the most compelling facts in steel mill economy today.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

European Iron and Steel Statistics

Gross Tons

Pig Iron Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912	729,000	405,000	192,000	184,800	1,279,200
1913	855,000	427,200	203,800	209,000	1,374,400
1921	218,000	280,300	71,800	79,600	643,200
1922	408,500	428,900	132,300	138,200	770,500
1923	620,000	445,600	179,100	115,400	404,700
1924	609,000	631,100	230,300	177,000	640,500
1925	521,800	696,800	208,500	192,300	834,500
1926	203,500	770,500	278,800	206,100	791,000
1927					
January	434,600	792,400	311,500	224,100	1,044,600
February	571,100	705,100	288,000	204,500	953,600
March	671,800	788,500	309,400	226,200	1,068,900
April	680,000	761,800	305,100	221,000	1,035,400
May	720,100	781,800	314,000	233,900	1,112,100
June	651,300	735,000	297,300	220,300	1,050,900
July	645,800	757,100	314,700	221,700	1,091,600
August	596,100	761,400	311,700	234,500	1,098,100
September	591,500	749,500	304,000	225,500	1,087,400
October	596,300	783,600	317,200	226,600	1,121,600
November	575,900	752,500	308,200	217,800	1,101,900
December	559,100	.....	311,900	224,600	1,131,700

Ingots and Castings Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912	566,000	363,000	206,000	79,400	1,339,600
1913	638,600	384,500	202,300	109,000	1,445,700
1921	308,600	254,500	62,800	61,900	819,700
1922	490,100	372,000	128,400	114,300	960,500
1923	706,800	419,100	186,200	98,300	517,000
1924	685,100	566,000	234,700	154,300	806,500
1925	615,500	608,300	197,700	170,800	1,000,000
1926	296,700	687,900	276,800	184,100	1,012,500
1927					
January	730,700	662,900	315,700	192,300	1,288,500
February	826,800	618,200	292,200	181,300	1,214,300
March	949,600	692,900	309,700	199,800	1,393,600
April	850,100	669,900	296,400	202,800	1,269,100
May	884,600	700,800	316,100	206,900	1,356,200
June	747,300	661,400	295,100	200,000	1,307,200
July	687,100	666,300	309,200	199,800	1,341,100
August	643,100	683,200	320,600	212,500	1,409,700
September	777,000	682,400	285,400	209,600	1,353,600
October	699,000	711,600	307,200	211,800	1,392,000
November	698,700	672,900	305,200	204,200	1,378,900
December	604,900	.....	305,900	210,500	1,346,300

*German pre-war boundaries for 1912 and 1913; from 1919 the figures do not include the Saar district returns.

Imports

	United Kingdom	Belgium and† France	Luxemburg	Germany*
Average monthly 1912	166,400	16,400	87,000	27,300
Average monthly 1913	185,900	14,100	72,900	25,000
Average monthly 1921	136,700	41,300	43,300	54,000
Average monthly 1922	73,500	63,300	47,700	152,300
Average monthly 1923	110,200	58,500	43,700	145,000
Average monthly 1924	202,400	57,100	46,800	160,000
Average monthly 1925	226,700	14,100	44,500	98,400
Average monthly 1926	311,700	14,200	50,200	86,500
1927				
January	555,500	7,900	45,800	129,500
February	443,400	10,100	36,800	143,400
March	478,100	10,500	54,000	129,800
April	404,700	12,000	47,300	200,000
May	355,900	15,100	47,500	186,400
June	332,600	14,100	56,300	186,300
July	336,300	12,000	52,700	189,000
August	286,300	9,900	63,400	211,300
September	312,000	6,900	50,000	210,900
October	336,000	8,100	68,000	232,800
November	284,800	8,200	57,800	223,900
December	280,500	.....	.....	.....

Exports

	United Kingdom	Belgium and† France	Luxemburg	Germany*
Average monthly 1912	400,600	41,500	124,500	482,400
Average monthly 1913	414,100	51,600	129,200	517,300
Average monthly 1921	141,400	133,800	75,600	160,000
Average monthly 1922	283,400	161,400	175,900	209,700
Average monthly 1923	360,000	181,900	207,900	110,000
Average monthly 1924	321,100	231,100	282,200	130,000
Average monthly 1925	310,900	321,700	262,800	267,600
Average monthly 1926	249,000	343,800	308,900	402,000
1927				
January	219,400	463,300	345,900	478,400
February	251,700	480,600	364,500	352,900
March	353,000	472,700	415,000	374,100
April	334,500	519,100	383,800	344,300
May	422,400	461,900	364,800	344,300
June	366,100	432,900	351,300	307,600
July	389,600	454,600	375,700	340,600
August	342,400	465,800	426,700	333,200
September	384,900	453,600	357,100	346,800
October	384,800	508,400	372,900	340,700
November	399,100	449,300	392,900	326,800
December	381,800	.....	.....	.....

*Luxemburg is included with Germany in 1912 and 1913.

†Luxemburg included with Belgium from 1922 onward.

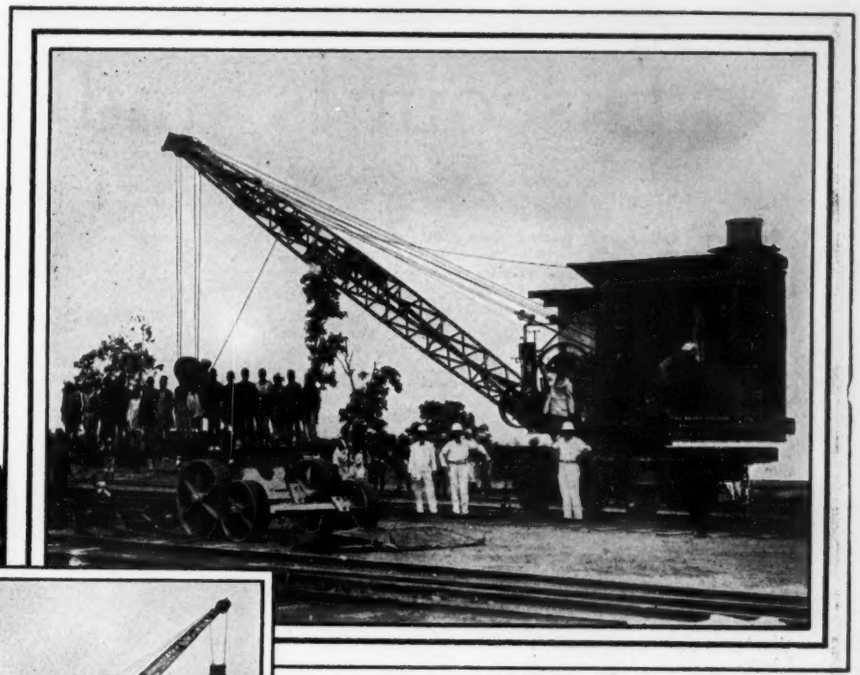
American Iron and Steel Exports, Imports

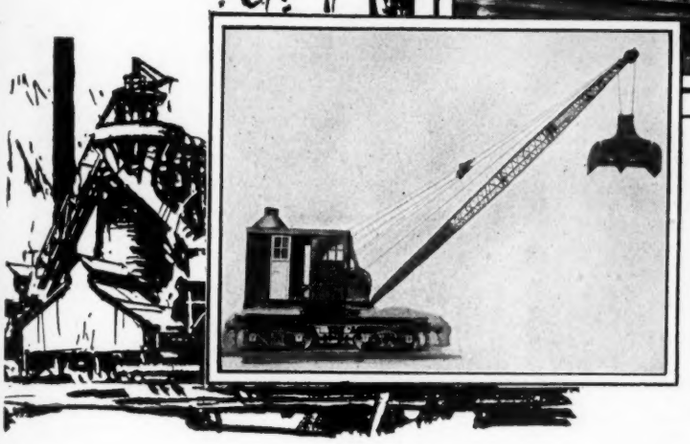
Gross Tons

	Imports	Exports
1928		
January	58,635	205,766
1927		
January	63,404	215,235
February	49,451	166,128
March	61,872	171,094
April	60,374	192,339
May	79,814	202,708
June	69,017	184,364
July	61,112	190,502
August	68,386	175,636
September	58,464	166,352
October	52,503	170,255
November	61,882	177,928
December	64,188	168,428
Total	750,467	2,180,969
1926		
January	79,067	174,585
February	100,213	157,187
March	93,107	169,438
April	107,636	194,449
May	108,731	173,418
June	124,215	159,506
July	82,411	194,717
August	91,578	171,588
September	85,484	182,071
October	81,830	172,070
November	81,259	219,830
December	75,559	198,189
Total	1,111,090	2,167,048
1925		
January	77,065	141,714
February	92,380	102,302
March	92,110	155,386
April	71,249	155,426
May	68,117	150,612
June	83,330	136,847
July	64,642	138,670
August	68,489	188,963
September	68,445	136,754
October	80,163	141,817
November	79,771	171,134
December	98,400	142,209
Total	943,240	1,762,571

Yearly Totals		
1924	556,281	1,805,064
1923	734,734	2,009,141
1922	712,895	2,005,100
1921	135,825	2,150,276
1920	421,274	4,934,087
1919	322,264	4,397,295
1918	169,110	5,338,019
1917	330,301	6,465,053
1916	328,965	6,110,732
1915	282,396	3,532,564
1914	289,775	1,549,554
1913	317,260	2,745,635
1912	225,072	2,947,596
1911	262,457	2,187,725
1910	510,730	1,537,943
1909	363,984	1,243,583
1908	205,845	964,242
1907	662,358	1,301,981
1906	577,809	1,325,740
1905	416,000	1,011,255
1904	266,398	1,167,674
1903	1,178,797	326,590
1902	1,212,484	1,103,664
1901	221,297	700,852
1900	209,955	1,154,284

Your Savings Can Be Even Greater





In India

Industrial Brownhoist Economy Wins Over Coolie Labor

If you could hire all the laborers you wanted at a per capita cost of a few cents a day, there might be some reason for not considering the use of an Industrial Brownhoist. Yet, in India, where this very condition exists, the Tata Iron & Steel Company have used these locomotive cranes since 1914.

People buy cranes only on a dollars and cents investment basis. And it is only because Industrial Brownhoists do give the lowest cost per ton of material handled that thousands are in use today.

Equally effective on bucket, hook, and magnet work, an Industrial Brownhoist will handle all kinds of materials and go anywhere to do it.

You undoubtedly know how much your materials handling is costing you at present. Why not compare this figure with what it would cost to have an Industrial Brownhoist do the work? We believe you would find the saving worth while. Let us prove it.

Industrial Brownhoist Corporation

General Offices: Cleveland, Ohio.

District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, St. Louis, San Francisco, New Orleans, Bay City, Mich.

INDUSTRIAL BROWNHOIST

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. These preferentials increased by one extra 5 per cent in meeting competition.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾-inch	30	13
1 to 1½-inch		

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3½ to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
¾-inch	30	14
1 to 1½-inch		

Lap Weld

2-inch	28	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 5 on black and 1½ and 5 on galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 13-inch	46 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of one 10 to two 10's and one 5 now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier	

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot	.20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot,	.20c
Plates ordered 7.65 pounds per square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B.	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charles for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c